MEDIATING INTERNET ART

CURATORIAL MODES IN TANGIBLE AND VIRTUAL DOMAINS

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by

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ABSTRACT

This dissertation examines Internet Art and its mediation efforts. As a practice with now more than 20 years of existence, Internet Art is still greatly marginalized from art institutional settings for its inferior status in comparison with tangible auratic artworks. The curatorial field of knowledge has been hardly handling the discussion of how technology has been transforming modes of production and mediation of art. The central aim here is to understand how Internet Art has been and can be mediated in online and tangible settings. The Literature Review has surveyed a broad range of writings about New Media Art and Internet Art in combination with direct engagement with artworks. This had the purpose of gaining insight into what Internet Art consists in, its behaviors and construction. To explore how Internet Art has been exhibited, preserved, and distributed, the research followed a multiple case studies method. It delved into five cases of mediation efforts related to Internet Art in both online and tangible settings. These have been surveyed qualitatively based on direct observation and engagement and secondary sources, such as exhibition reviews, curator statements, and audience input. Given the marginalization of Internet Art as part of the larger group of art making use of new media, this study helps in surveying different strategies or modes of mediation in both tangible and virtual domains. The strategies analyzed include computer display, online curating and preservation, and versioning into document, installation, and projection formats.

KEYWORDS

Internet Art; Curatorship; Mediation; New Media Art; Digital Art

RESUMO

Esta dissertação analisa a Internet Art e os esforços de mediação desta prática artística. Sendo uma prática com mais de 20 anos de existência, esta é ainda marginalizada em relação ao espaço institucional da arte pelo seu estatuto inferior em comparação com obras de arte tangíveis e auráticas. O campo de conhecimento dos estudos curatoriais não tem conseguido acompanhar a discussão de como o desenvolvimento tecnológico tem vindo a transformar os modos de produção e mediação desta arte. O objetivo central é compreender como a Internet Art tem vindo a ser e pode ser mediada em contextos tangíveis e online. A Revisão da Literatura examina uma vasta coleção de escritos sobre New Media Art e Internet Art, em combinação com a interação direta com as obras de arte. Tal teve como objetivo compreender em que consiste a Internet Art, os seus comportamentos e construção. De forma a explorar como a Internet Art tem sido exposta, preservada e distribuída, a pesquisa segue um método de análise de múltiplos casos de estudo, sendo analisados cinco casos de ações de mediação da Internet Art em contexto tangível e online. Os casos foram analisados qualitativamente tendo por base a observação e interação com obras de arte, bem como fontes secundárias como críticas de arte, textos curatoriais e contribuições do público. Dada a marginalização desta prática como parte do grupo de arte que recorre ao uso dos new media, o contributo deste estudo reside na análise de diferentes estratégias ou modos de mediação tanto no domínio tangível como virtual. As estratégias analisadas incluem a exposição através do computador, a curadoria e preservação online e a tradução para formatos de instalação, documento e projeção.

PALAVRAS-CHAVE

Internet Art; Curadoria; Mediação; New Media Art; Digital Art

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1. INTRODUCTION

Introductory information

At the start of this research, the ways in which curating online and offline differ from one another are not clear. There is a need to clarify how theory is put into practice regarding curatorial efforts between virtual and tangible formats. This implies examining how acts of versioning or translation of artworks based on digital media into tangible space and formats are accomplished. The curatorial field of knowledge has been hardly handling the discussion of how technology has been transforming modes of production and mediation of this art. This issue extends to the institution of contemporary art, which meets various problems related to specific traits of digitalization and virtualization processes that have caused this kind of practice to be misrepresented and marginalized.

In 2012 the Tate produced *The Gallery of Lost Art*, an online exhibition showcasing stories of tangible artworks that have disappeared. Its immersive context simulated the tangible environment of a warehouse in which users would navigate the digitally created space as if in a tangible gallery. The interesting fact is that one of Tate's first online exhibitions did not feature actual artworks belonging to their collection. As such, the Web was employed to mediate the narratives of the disappearance of artworks that could no longer be owned — narratives that have transcended actuality and have been virtualized. It is intriguing that the simulated setting of display of intangible and virtual content was the representation of a tangible space. Considering the medium-specificity of an online exhibition, it would seem more fitting if the simulated space and displayed contents were more directly related to the digital domain and be digital-born, rather than digitally reformatted.

The Gallery of Lost Art provided the first contact with a digital-based curatorial project, enticing interest in researching artistic practices and curatorial efforts involving digitalization. Thus, the problematization of modes of mediating content between online

and offline domains became the central aim of this research. Internet Art is addressed for its perception as one of the digital artistic practices whose mode of production is most deeply embedded in the digital and virtual context and faces many challenges of preservation due to ephemerality and technological obsolescence.

Methodology

This dissertation is based on a qualitative multiple case studies research method. It aims for an understanding of the phenomenon of mediating Internet Art through the analysis of multiple cases, ultimately surveying the similarities and differences between them. The choice of method is grounded on the need for further contextual analysis of cases related to the phenomenons on focus and the relationship between them to put across various ways of mediating Internet Art. The qualitative mode of research is employed to examine cases through multiple evidence sources to provide examples of practical applications of ideas dealt with theoretically. The steps taken toward the definition of the methodology involve defining research objectives, selecting cases, and determining information gathering and analysis procedures.

Objectives

The underlying intention is to explore how technological conditions affect art production and mediation. Examining this phenomenon requires considering practices based along the context lines of New Media Art incorporating technological developments in production and mediation. At its core, this will be a survey of how Internet Art gives way to the development of new mediation strategies. Internet Art is specifically considered for this matter as a field where notorious transformations convening a whole new set of skills and tools have occurred in the production and experience of art.

Regarding the usage of technology for the display of art, it is useful to address how and where is Internet Art being legitimized and represented. A primary concern deals with the

status of digital works in the art world and what new discourses about art are being created. It is topical to explore the mediation of Internet Art in online and tangible settings and what possibilities are brought up by curating and experiencing art between these domains.

Case selection

The selection of cases is based on how they illustrate various strategies of exhibiting and mediating Internet Art in online and tangible settings and how they showcase and put into practice the theorization dealt with in the Literature Review. This is a task that requires prior knowledge of a broad range of artworks and exhibitions in the Internet Art and New Media Art fields, as well as new media theory and art preservation. Cases will be analyzed through their contextualization, description, and discussion. As the art world proves itself variable in organization, the external validity of the case study research demands an approach considering the diversity of contexts and sources of Internet-based practices. The variety of practices urges the analysis of several cases to point key sites in which the legitimacy of the phenomenon under focus is pursued and tangible and online mediation strategies are followed.

Case selection followed two main categories — chronology and mediation strategy. The cases range from 1994 to 2018. In attempt to uncover any possible development, five cases were selected from their position along the aforementioned period. Two cases were selected to survey online mediation while three were chosen for tangible mediation. In online mediation, äda'web (1994-1998) represents a curatorial and lab-like production and display platform for Internet Art while Rhizome ArtBase (1999) is an online archive and curatorial platform. *documenta X* (Kassel, 1997), *net.ephemera* (Gallery of Moving Image, New York, 2002), and *Electronic Superhighway* (MAAT, Lisbon, 2017-2018) inquire into tangible mediation of Internet Art. Although for practical reasons their analysis is divided in subchapters, these online and tangible mediation modes intertwine — *net.ephemera* and *documenta X* featured Internet Art both online and on-site and the

Rhizome ArtBase, as an online accessible collection, has already had its contents selected and featured in tangible exhibitions.

Information gathering and analysis

The case studies method will attempt to prove itself effective in gathering and dealing with a variety of qualitative information from multiple sources, both digital and tangible. Sources of information include documents regarding exhibitions and individual artworks, such as reviews, curator essays, artist statements, interviews, audience input, and press coverage. For more than one case, information was also collected through direct observation and interaction with tangible artworks and artworks accessible on the Internet. The research attempts to find effectiveness in combining theoretical review and case analysis to generalize findings and attain validity.

The branch of knowledge of new media theory is addressed to explore the structure and experience on the Internet and give conceptual support to an understanding of the phenomenon under analysis. Addressing new media theory is necessary as the Internet is part of its focus and presents an inclusive character of different media phenomenons. Some of the main acknowledged texts considered the foundation for the theoretical part of the research are *The Language of New Media* (2001) by Lev Manovich and *Becoming Virtual* (1998) by Pierre Lévy. These theories are useful to address contemporary digital culture and to examine the phenomenons under focus. They can be used to define complementary approaches applicable to the analysis of Internet Art and mediation practices in technical, aesthetical, and sociological terms.

Structure

The Literary Review is subdivided into a brief historical examination of Internet Art, a survey of preservation strategies, and an analysis approach to Internet Art. The chapter surveys the knowledge produced in the specific subjects under analysis. The development

of Internet Art is mapped in the historical examination aiming to find the context and terminology required for the discussion of Internet Art. The preservation subchapter delves into the issue of how Internet Art can be safeguarded for posteriority as a specific kind of heritage deeply troubled by the impermanent and fragile nature of technology. The analysis approach to Internet Art informs about the way the phenomenon will be analyzed — it deals with the experience of art influenced by technological conditions while allowing to clear different aspects concerning practices of Internet Art. The Case Studies chapter covers the gathering and discussion of the information collected for each case. It deals with the differences of mediating Internet Art between online and tangible settings. The chapter is subdivided into two modes of mediation — online and tangible.

2. LITERATURE REVIEW

Historical examination of Internet Art

Classifying and categorizing forms of Digital Art is a difficult task and is not the purpose of this research as it has already been conducted elsewhere. Part of its difficulty is related to the fact that artworks under this overarching terminology tend to combine aspects of various nature. From all digitally informed artworks, the phenomenon concerning this research is Internet Art. These are artworks related to the Internet by taking advantage of its means of production and distribution. The following review will briefly survey the development of the phenomenon, the terminology in use, as well as traits of exemplary works.

Internet Art is problematic to define without understanding the specific relationship between works and their context. As an expression of Digital Art from the mid-1990s it relates directly to the advent of the World Wide Web. Its main affordance is the basis on "hypertext transfer protocol (HTTP) that allows one to access documents written in HTML" (Paul, 2008, p. 111). This language grants access to information in "a web of nodes in which the user can browse at will. It provides a single user-interface to large classes of information" (Dreher, 2015). It has been asserted that "'optical' aesthetic" is not an underlying feature of Internet Art as it is rather defined by "discourse instead of singular texts or images" (Greene, 2004, p. 162). The term Internet Art applies to several practices bringing forth an exchange of ideas in a dialogue between participants from the worlds of art and technology.

There has been much debate concerning the definition of art related to the Internet since the 1990s, yet there is no agreement upon a sole and most correct terminology. This debate is rooted on the fragmented nature of the practice reflecting different ideas, styles, and methods of practitioners (Berry, 2001). Artists, such as Alexei Shulgin and Natalie Bookchin, have also participated in the discussion, having produced a manifesto

positioning net.art as an avant-garde practice with close ties to the Internet as a communication channel, while also listing its traits:

1. Formation of communities of artists across nations and disciplines
2. Investment without material interest
3. Collaboration without consideration of appropriation of ideas
4. Privileging communication over representation
5. Immediacy
6. Immateriality
7. Temporality
8. Process based action
9. Play and performance without concern of fear of historical consequences
10. Parasitism as Strategy
    a. Movement from initial feeding ground of the net
    b. Expansion into real life networked infrastructures
11. Vanishing boundaries between private and public
12. All in one:
    a. Internet as a medium for production, publication, distribution, promotion, dialogue, consumption and critique
    b. Disintegration and mutation of the artist, curator, pen-pal, audience, gallery, theorist, art collector, and museums

(Shulgin, Bookchin, Blank, & Jeron, 2001)

The term net.art is mostly used in reference to the first wave of practitioners, including Vuk Cosic, Alexei Shulgin, JODI, Heath Bunting, and Olia Lialina, who established a particular language (Greene, 2004), thus it seems insufficient to employ the term in reference to the whole of Internet Art. This early language was "a provision of models being technically successful" (Dreher, 2015). The suffix in net.art does not indicate institutional status, but a particular style in which "net conditions" are observable (Dreher, 2015). Technological conditions of the time were contextual as the Web was at first unsophisticated – its content was mostly textual, image quality was low, and webpages loaded slowly. These works were more conceptual and based on collaboration and experimentation.

Some classic works of this stage are Olia Lialina's *My Boyfriend Came Back from the War* (1996) and Heath Bunting's *_readme* (1998). In the former, affordances of the Web are regarded as theme alongside a narrative. Interactivity allows clicking on images and text

while a narrative is unraveled and information is gradually reconfigured through browser functions. Bunting's work also operates through self-referentiality, consisting in an article whose words are presented as hyperlinks directing to websites with domains corresponding to the words on the article.

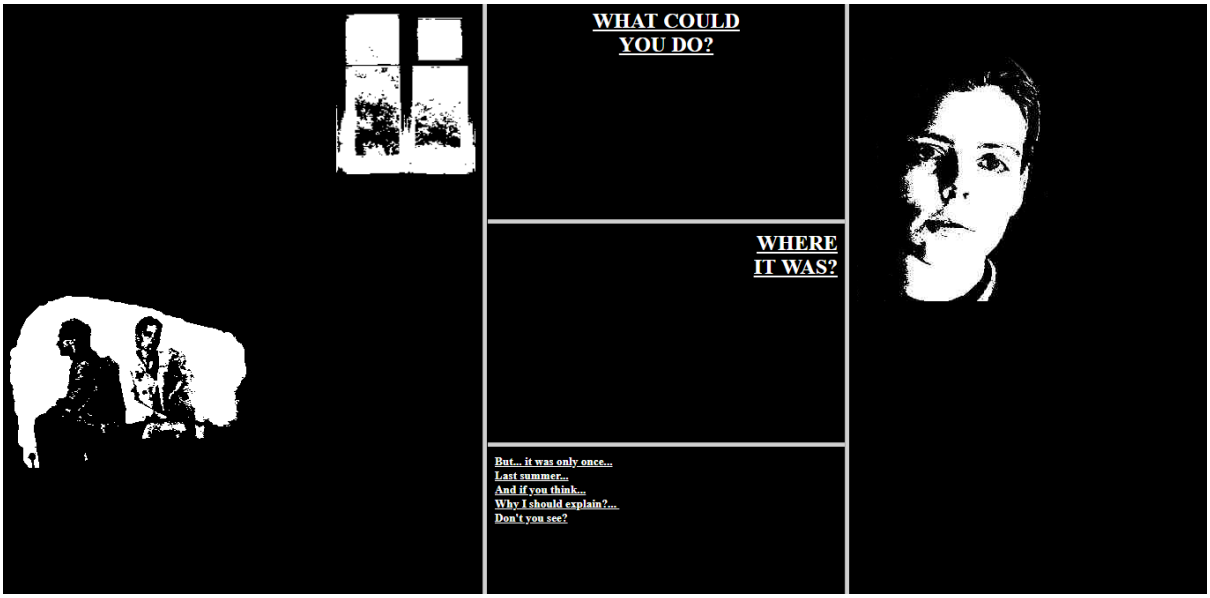


Figure 1: Olia Lialina, *My Boyfriend Came Back From The War*, 1996. Captured from http://www.teleportacia.org/war/

Figure 2: Heath Bunting, *_readme*, 1998. Captured from http://www.irational.org/_readme.html

The term Net Art has also been used to address the group of practices of "net.art, Web art, browser art and art on the Net, among numerous other terms" (Berry, 2001, p. 44). "Net-based art forms" (Daniels & Reisinger, 2009, p. 15) was proposed when referring to artworks produced between 1992 and 1997, the earliest period of production of Internet Art. The extensive list of terminology results from usage according to purpose and period of analysis (Albuquerque, 2013). To avoid confusion, in this research the term Internet Art is used in an all-encompassing way of reference to artistic practices based on the Internet and departing from it.

Browser Art was defined as a subgenre of Internet Art (Paul, 2008) involving the creation of browser alternatives that act on reconfiguring information and experience on the Web. Browsers are defined as portals through which experience on the Web is possible, for they present themselves as visualization systems following conventions in similarity to older media (Demers, 2012). Works of Browser Art question conventional displays of information by traditional browsers and take experience on the Web as theme. The difference between creating works like these nowadays and during the early days of the Web is that processes of experience are now overlooked by users, while in earlier times

conventions of information experience were yet to be assimilated, thus enticing artists to challenge them. Maciej Wisniewski, Mark Napier, and the group I/O/D (Matthew Fuller, Colin Green, and Simon Pope) are known entities operating in this subgenre. I/O/D's *The Web Stalker* (1997) is an application that mirrors a visual browser. The art shown is the Web itself and its strategy aims to turn the concealed structural properties of the Web visible to the recipient, who may visit addresses, view source code, and explore layers and connections between hyperlinks in graphic depictions. Maciej Wisniewski's *netomat™* (1999) is an alternative to conventional browsers presenting more flexibility and free formal aspects. The recipient types terms used by the browser to retrieve information from the Web and present it as text, images and audio. Findings are displayed without considering the original form of information on the sources. Mark Napier's *Riot* (1999) is a browser presenting content from the last three addresses accessed by other visitors through the browser. Its innovation is on the merging of information from different sources in a way that contradicts concepts of ownership and territory on the Web while also bringing forward issues about surveillance and privacy.

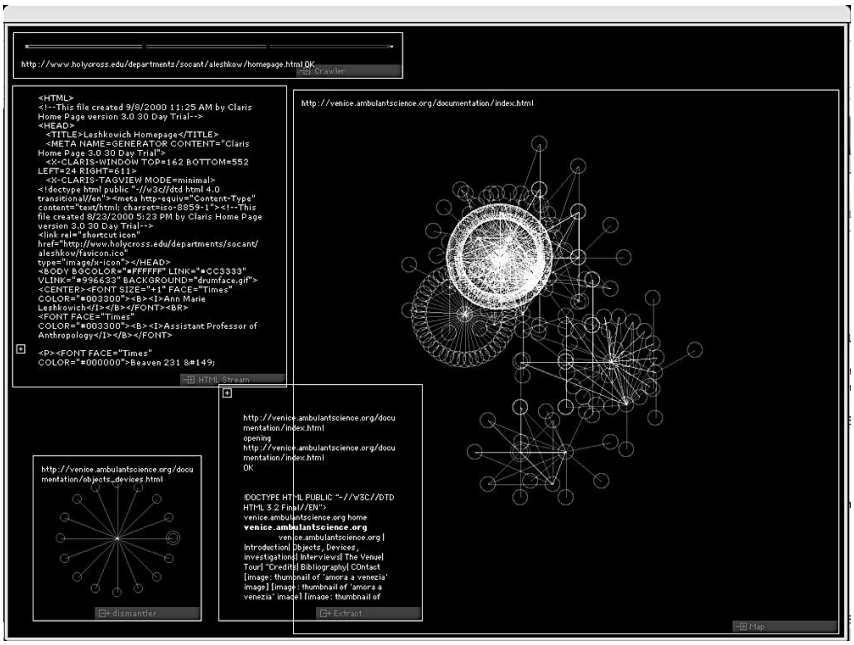


Figure 3: I/O/D, *The Web Stalker*, 1997. Captured from https://sites.google.com/site/ambulantscience/i-o-d

Figure 4: Maciej Wisniewski, *netomat™*, 1998. Retrieved from https://www.digitalartarchive.at/database/general/work/netomat.html

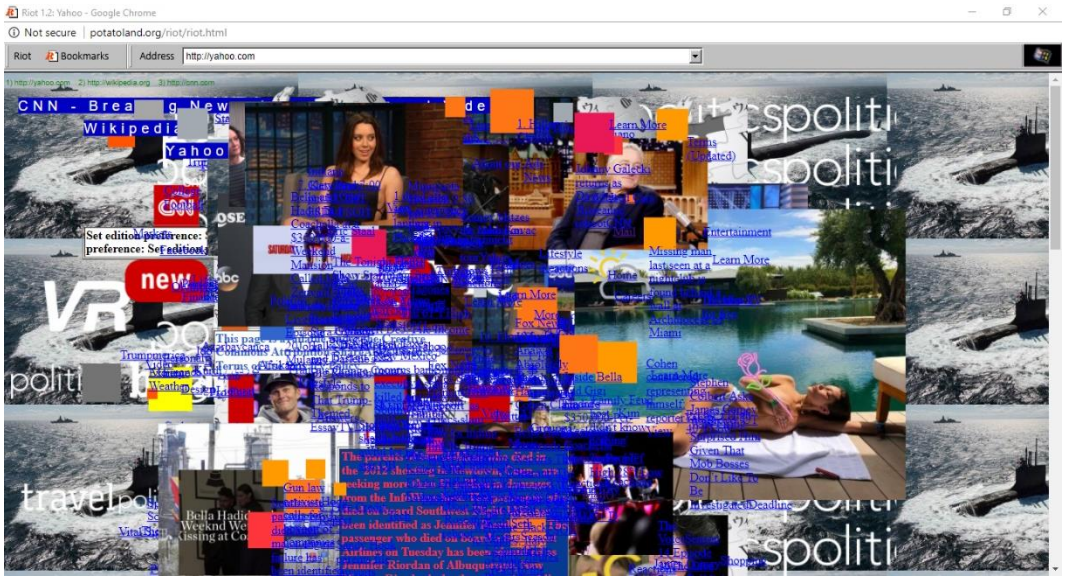


Figure 5: Mark Napier, *Riot*, 1999. Captured from http://potatoland.org/riot/riot.html

Although superficially it may not be obvious, "there is no digital art without software" (Cramer, 2003, p. 1), for all art that is digitally produced is based on programming code. This means Software Art is ambiguously defined as the formal set of instructions

(algorithms) that constitutes software is often disregarded as artistic material. It is mistakenly perceived as background process, a view reinforced by its invisible form and by interfaces masking it to facilitate usability and interaction (Cramer & Gabriel, 2001). This view may be considered a perpetuation of the concept of artwork as a tangible object and of sensuous nature.

I/O/D's *The Web Stalker*, besides being Browser Art, can be perceived as Software Art for allowing a visualization of link structures and internal code arrangements. It makes the content of the page unreadable to the user but grants access to a deeper layer of information, reminding that superficial and apprehensible forms depend on underlying software. In a narrow sense, Software Art may be identified when software is part of the aesthetics and artistic creation of a work. If software contributes to a work only as background operation it is not considered Software Art, for it must expose its "instructions and codeness" (Cramer, 2002). In analogy to Conceptual Art, whose structure or concept is the material of the artwork, software can be defined as the material of Software Art. Moreover, Software Art is usually employed when referring to software written by artists from the starting point (Paul, 2008).

Jon Ippolito pointed out some misconceptions about Internet Art behind its incomprehension by the institutional art world. Firstly, Internet Art is distinguished from Web art: "The World Wide Web is only one of the media that make up the Internet" (Ippolito, 2002, p. 486), as there are other online protocols such as e-mail and instant messaging. Major traits of Internet Art are related to shared affordances with the Internet: participation in a "social mechanism" (Ippolito, 2002, p. 485) granting interactivity between recipient and artwork; connectivity as multiple community forms may be created; and dynamism in usage of content of various nature.

An analysis of Internet Art can be elaborated upon by considering the behavior or performance of works. Michele White refers that the works' self-reflexivity – the practice's consciousness and commentary on itself – reveals much of their aesthetic outline (White,

2002). Reflexivity occurs through appropriation of structural functionalities of the Internet, maintaining a connection to the Greenbergian modernist tradition and its advocation of pure art in surveying the formal properties of materials (White, 2002). If the language of the Internet is based on a grammar that aims to be familiar and user-friendly to facilitate interactivity, when accepted conventions are purposely removed or subverted the results are user disorientation, illegibility, lack of visual references and difficult usability due to faulty links, breakdowns, and code glitches. This user-unfriendly experience encourages a critical focus on the functionalities, aesthetic properties, and underlying structure of the Internet. By deconstructing conventions, possibilities of performance that usually remain imperceptible in normal usage are unveiled. This is related to Lev Manovich's myth of interactivity (as discussed further on page 25) inasmuch as the recipient becomes aware of their limited performative possibilities on the Internet.

Dieter Daniels and Gunther Reisinger outline Internet Art through the attributes of anti-art attitude, art for everyone, direct reach of audiences, disregard for institutional mediation, collective and anonymous authorship, deconstruction and enquiry into the medium, and internationalism (Daniels & Reisinger, 2009). The usage of medium is here in accordance to some media art theorists' distinction between tool and medium when it comes to digital technology. Digital technology as artistic medium implies that production results in a work of digital format reflecting the intrinsic customizable, interactive, and dynamic possibilities of the medium (Lovejoy, Paul, & Vesna, 2011). In contrast, digital technology as a tool is used to assist production of traditional art objects and to convert tangible artworks into digital formats.

Although it is suggested that Internet Art is not an artistic movement due to its variable manifestations and the lack of a common tendency, it may be considered an expression of a specific historical context in close relation with the usage of communication channels (Baumgärtel, 2001). Nevertheless, three periods of production have been identified (Albuquerque, 2013). In the first, commonly mentioned as net.art and spanning from 1994 to 2000, artists operated mostly in autonomous ways from the institutional art world,

defining the practice as a democratically accessible avant-garde (Shulgin, Bookchin, Blank, & Jeron, 2001). The works[1] experiment with traits of the Internet, such as low connection speed, reliance on code, user experience, and visualization systems (interfaces). The second period[2], from 2000 to 2004, coincides with the Web 2.0 update and brought forward new visual and aesthetic concerns in relation to new possibilities of working with Internet conditions — greater technical mastery and faster and easier access (Albuquerque, 2013). The major difference between these phases is noticeable in the increasing prominence of social networks and recipient input. The third period[3] is based on specific characteristics of social networks deliberately explored and appropriated, and shares many traits with Post-Internet Art.

Since the beginning of the 20th century, the exploration of the Internet for artistic production went alongside new creative inquiries into its impact in society and increasing usage. These explorations have taken various offline and online configurations. The concept of Post-Internet, first used by artist Marisa Olson in 2008, came about when a new term to refer to these creative proposals was required. The term does not imply that the Internet is over[4], rather it refers to the legacy of earlier Internet Art within the current state of technology (Cornell & Halter, 2015). It is an acknowledgment that Internet Art has come to a stage including not only works based on the Internet, but also those engaging with the Internet and influenced by it. The coinage of the term and its usage by curators and artists concur to the definition of a practice where it is impossible to point out a specific culture of the Internet since it has infiltrated culture in a broad sense. As the Internet has become a banality instead of something new (McHugh, 2011), its impact

[1] Examples are *Visitor's guide to London* (1995) by Heath Bunting, *My boyfriend came back from the war* (1996) and *Agatha Appears* (1996) by Olia Lialina, *asdfg.jodi.org* (2001) by JODI, *The world's first collaborative sentence* (1994—present) by Douglas Davies, *Please change beliefs* (1996) by Jenny Holzer, *The Intruder* (1999) by Natalie Bookchin, and *Vaticano.org: The First Internet Coup* (1998) by 0100101110101101.org.

[2] Examples are *www.jacksonpollock.com* (2003) by Miltos Manetas, *Urban Rhythms* (2005) by stanza.co.uk, *Esfera de las Relaciones* (2004) by Santiago Ortiz, and *Wordtoys* (2006) by Belén Gache.

[3] Examples are *Mass Ornament* (2009) by Natalie Bookchin, *Youtag* (2009) by Lucas Bambozzi, and *Tweeting Colors* (2009) by Brian Piana.

[4] A more appropriate term would indicate that the Internet has become ubiquitous in that it penetrates most aspects of current life and informs all cultural activities.

is not only seen online but can also permeate offline contexts (Olson, 2011). Rather than an artistic movement, Post-Internet is a condition or a cultural shift in current society toward a critical acknowledgement of the influence of technology far beyond the online context (Olson, 2011).

The generation of artists operating in such a time differs from earlier phases because the Internet is regarded as a mass medium influencing the broader cultural framework and engaging with political and corporate spheres through a larger potential of interactivity and dissemination (Cornell & Halter, 2015).

Contrastingly to earlier Internet Art, Post-Internet has resulted in works that are more easily commercialized and presented in traditional art display settings (Prada, 2017). It has been argued that it is a development of Internet Art in conformity with an easier accommodation of the practice in institutional spaces, akin to the conversion of Video Art into something easily commodified and presented as spectacle (Prada, 2017) (Droitcour, 2014). However, behind this yielding to the institutional system and market there may be a desire to combat "a lack of Internet awareness within artistic discourse" (Archey & Peckham, 2014, p. 134). While Post-Internet Art can be considered "one of the strategies and modes of expression of a wider and more vibrant contemporary 'internet art' scene" (Quaranta, 2015, p. 123), one cannot deny its growing acceptance in the institutional art system and market as a rebranding of earlier Internet Art.

Following its first appearances in exhibitions through computer stations in room corners or secluded media lounges, Internet Art in the first years of the new millennium was captured into the exterior of the computer and the Internet. It was then manifesting itself in various forms including installation, performance, and video that aimed to "invoke the internet or online culture through their materials and underlying concepts" (Cornell & Halter, 2015, p. xx). Some artists referred in the discourse on Post-Internet Art are Marisa Olson, Petra Cortright, Rafaël Rozendaal, Katja Novitskova, Artie Vierkant, and Jaakko Pallasvuo.

Preservation strategies and issues

There is no sole preservation method appropriate for all kinds of artworks, thus preservation strategies employed on tangible art objects do not apply to New Media Art. New Media Art's defining traits pose problems to the preservation of its integrity, identity, and documentation in order to enable future displays in authentic ways and its accessibility. Any artwork that employs technological elements struggles with obsolescence phenomenons that oppose stability and long-run preservation (Fino-Radin, 2016).

Due to its 'immaterial' nature — based on links between software and hardware, as Christiane Paul puts it — the main setbacks are the fast obsolescence of hardware and software updates (Paul, 2007). The different formats or versions artworks acquire as well as the interactivity affordance at work in actualization processes are of extreme difficulty to preserve and document: "Current vocabularies and tools for describing and documenting artworks hardly accommodate the various mutations new media art undergoes" (Paul, 2007, p. 270).

Howard Besser pointed out some of the preservation problems endemic to electronic art, some of which apply to Internet Art: lack of fixity, dynamic nature, unclear boundaries, formal elements, authenticity issues, digital malleability, and unclarity of what is really the work of art (Besser, 2001). Lack of fixity mirrors Manovich's transcoding principle in that New Media may be independent of which device is used to access it. The dynamic nature of works means they are in mutation or include elements that change periodically, either purposefully or not. The unclear boundaries of a work call forth its inter-relation with other works or information, especially on the Web. Specific formal elements of a work attest authorship and may be considered contextual. Thus, in the current development of technology, altered elements may prove to affect the work in ways making it behave or appear differently as originally intended. Malleability is problematic when works are object

of editing and altering of its components, which intersects with the authenticity issue. Lastly, the difficulty to ascertain what is really the artwork is not specific to New Media Art as it can be asked to much of Contemporary Art. In Internet Art, this is problematic when derivative objects, actualizations, and documents are produced. Other cases demand the questioning of what is the most basic artistic material of the artwork – its underlying algorithm or interfaced sensuous form?

The reluctance of institutions to work with Internet Art for display or preservation purposes can also be linked to the lack of equipment and knowledge to address new and complex forms of art. Museums are unlikely to deal with works based on new media compared to traditional works whose nature is stable and already familiar, pushing artists operating with new technology forms and producing artworks of unstable and processual character to be marginalized from these settings for challenging the conservative object-based approach of art preservation (Dekker, 2018). Due to the technical properties of Internet Art, conservation is required to be a collaborative effort between conservators and experts such as IT specialists and programmers who are most likely not yet positioned in the art institutional field. Because of how New Media Art is generally perceived and welcomed into the art institution, its accessibility and preservation are affected. Since museums are archives, their duty besides mediating the past is creating it through what they elect to exhibit and preserve. This affects current knowledge and accessibility to the past while shaping the future by selecting what coming generations will inherit.

Preserving New Media Art implies a conceptual change in understanding preservation approaches in tradition. The idea of the artwork as an object of uniqueness and of physical integrity is problematic to preservation of art using technology due to its obsolescence and processual nature. A viable approach should thus not purely consider the materiality of the medium as the most valuable aspect of an artwork, for there are a number of other elements that produce aesthetically intrinsic "qualities of the artwork that evoke certain experiences" (Dekker, 2018, p. 4). Ignoring these qualities in a strict approach focused on medium materiality incurs the chance of neglecting the artwork's development and

creative processes. In consonance with the view that authenticity can be maintained while also embracing a work's inherent mutable qualities, the Variable Media Network understands conservation theory as acceptant of change and has defined four strategies for the preservation of New Media Art: storage, emulation, migration, and reinterpretation (Depocas, Ippolito, & Jones, 2003).

Storage is the most conservative strategy and refers to the preservation of tangible works in the form of hardware and technological devices. It also includes archiving digital files on disk. This strategy, however, fails when tangible materials become obsolete (Depocas, Ippolito, & Jones, 2003), and has been described as impractical for turning institutions into "computer museums" (Paul, 2007, p. 269).

Emulation involves recreating (simulating) the original appearance and behaviors of the work through different and contemporary conditions of hardware and software (Depocas, Ippolito, & Jones, 2003). This means that old code can run on newer systems through an emulator, affording effective functionality to dysfunctional works. However, this is generally an expensive strategy whose results may not be in complete accordance with the artist's original idea or concept (Dekker, 2016). Emulation is only a temporary solution to combat obsolescence of Internet Art as emulators may themselves become obsolete due to the rapid evolution of operating systems and browsers (Fino-Radin, 2011).

Migration means transferring a work from its obsolete format to modern formats of software and hardware (Depocas, Ippolito, & Jones, 2003). This strategy implies accepting changes to the original appearance and behaviors of the artwork since the process involves giving it a new form, especially in continual upgrade and if the original quality of files is lost (Dekker, 2016).

Reinterpretation is the most drastic strategy against obsolescence and consists in recreating an artwork using contemporary media to refer to old ones (Depocas, Ippolito, & Jones, 2003). In Internet Art, the strategy may involve altering formats of software or

even re-writing source code. While it may conflict with the artist's original intent, reinterpretation may be the only way of re-presenting certain works such as performance, installation, or works that mutate with each actualization (Dekker, 2016). In these cases, documents are helpful for the reinterpretation of a work in faithful ways.

Preserving works of Internet Art is deeply challenged by the ephemerality of organizational structures of the Web. Through hyperlinks, information on any webpage can relate to information elsewhere. The hyperlink structure, besides containing content, is important to contextualization. When the structure changes and linked information moves locations or changes its content, links break and both content and context may be lost. Internet Art works from the early stage are nowadays filled with dead end links rendering content inaccessible. Even if artworks are revised to include functioning hyperlinks, former instances would be lost if not previously documented.

Analysis approach to Internet Art

As Internet Art is intangible, based on code and apprehensible through visualization systems, its definition relies on the analysis of conditions of the digital domain. Several of these conditions are analyzed to formulate a basis for the analysis of cases.

Virtuality

Pierre Lévy suggests that the commonly appointed opposition between virtual and real is misleading, for the virtual is rather opposed to the actual and tends to actualize without reaching effective concreteness (Lévy, 1998). The virtual is also distinguishable from the possible, which is fully constituted and fixed but remains in latent state awaiting to become real, thus not possessing the creative potential of the virtual (Lévy, 1998). The virtual is permeated by tensions of the creative process involving actualization. In contrast to the movement from possible to real, the virtual is not foreseen nor static.

Actualization is to Lévy the creation of a form from a dynamic set of forces and finalities to resolve a problem (virtual): "It implies the production of new qualities, a transformation of ideas, a true becoming that feeds the virtual in turn" (Lévy, 1998, p. 25). In this sense, actualization is the inverse of virtualization: if virtualization is the movement from solution to essential problem, the process of actualization is the movement from problem to solution. While the process of actualization involves creative output of a form or idea, the process of realization is the simple occurrence of the possible, which is foreseen and does not require creation or innovation (Lévy, 1998).

The virtual is dealt by Lévy based on its detachment from time and space. Digital hypertext illustrates this point: although requiring some tangibility, it is mostly "deterritorialized" and does not possess a place but is "fully present in all its existing versions, copies and projections" (Lévy, 1998, p. 28). The process of virtualization implies becoming non-present, disengaging from tangible space and chronological time. The existence of the virtual in tangible supports (like hypertext) in order to be actualized is thus only seen as having a reference of time and space ('here and now') necessary for sensuous apprehension.

Text is a virtual entity that is actualized by each reading, just as every time a computer program launches its actualization "ignores certain skills, reveals new kinds of functionality, gives rise to conflicts, resolves problems, and initiates a new dynamic of collaboration" (Lévy, 1998, p. 25). Reading is therefore an actualization process, a movement between virtual and actual by establishing new links between language and reason. This is accomplished by multiple outcomes imagined and meanings attributed with each assessment of the text. The term text can here refer to any kind of discourse regardless of medium. When applying the process of actualization of text described by Lévy to the cases of hypertext and experience on the Web based on "multimodal information" (Lévy, 1998, p. 57), Manovich's interactivity myth in new media is called forth, asserting that performance on the Web is built to resemble mental processes as its design externalizes and objectifies the mind (Manovich, 2001). Lévy's concept of

actualization relates to the experience of art as a process performed by the recipient toward the resolution of a problem, i.e. the actualization of the virtual. It is comparable to the usage of words in communicating ideas, in which attributing meanings and interpretation are part of the actualization process, for a 'here and now' is given to the virtual entity to resolve its tensions (actualization).

This discussion brings about the issue of the reader becoming author as text readers can participate in the actualization process. It is even more visible in the case of hypertext, in which recipients may modify text and add to it, tracing their own paths through the nodes of network-based text: "We weave together its scattered members, spread out, dispersed across the surface of the pages or within the linearity of discourse. We stitch them together" (Lévy, 1998, p. 48). In this sense, reading becomes an act of writing and actualization, for it "multiplies our opportunities for producing meaning" (Lévy, 1998, p. 56).

If the theory of virtuality asserts the possibility of existence without an 'here and now', virtualization is a principle through which something may be set out of place and still be understood as an integral part of reality or a vector in creating reality. Based on this, the virtual museum may be defined not by its 'here and now' (i.e. its building, collection, staff), but by the nodes of forces the actual (tangible) museum provides answers to. By asking how a museum shares memory, the virtualization of the museum is seen as crucial to the actual museum, for it provides understanding of the latter through a specific solution to a problem or question in its underlying dimension:

> The virtualities inherent in a being, its problematic, the knot of tensions, constraints, and projects that animate it, the questions that move it forward, are an essential element of its determination (Lévy, 1998, pp. 24-25).

In his theorization of the art of the cyberculture, Lévy distinguishes two different virtual worlds that are interrelated, informing and feeding one another: those that are closed (offline) — such as CD-ROMS and installation artworks — and those that are accessible

through a network (online) (Lévy, 2001). Offline worlds allow fast and stable access to "projections" removed from the "continuous flow of information" of online virtual worlds (Lévy, 2001, p. 126). Offline worlds may build upon these projections with original and creative input. In a similar sense, online worlds may feed off offline worlds and contribute to them.

Lévy further delves into the difficulties the art of the cyberculture presents to the current art system. Conservation and documentation efforts are challenged by this art's processual and mutable nature, while its context of intertwined virtual worlds is always in state of expansion, especially considering their interactive and collaborative affordances (Lévy, 2001). Due to these traits, the art of the cyberculture differs from the concept of work of art in a traditional assessment: "To create a work, record, or archive no longer has—can no longer have—the same meaning as before the information deluge" (Lévy, 2001, p. 128). Authorship is also a resurfacing issue: although "The author is the condition of possibility for any perspective of stable meaning" (Lévy, 2001, p. 127), Lévy's view is that works in virtual worlds are essentially incomplete without the recipient's interpretation and interaction. These means for actualization displace the author as the sole giver of meaning. Since this art has its natural and original space in virtual worlds, Lévy points out that its display in traditional art spaces can only attain a status of reproduction, "an impoverished experience of their nature" (Lévy, 2001, p. 135).

New Media principles

Lev Manovich developed a language of analysis of new media objects through tools obtained by intersecting the cultural and technological domains of knowledge. Five underlying principles of new media that distinguish them from older media are presented and their sum defines a tendency toward digitalization. They are listed as "numerical representation, modularity, automation, variability, and transcoding" (Manovich, 2001, p. 20). Manovich's account of new media is valuable for considering technology as a channel for the display of new media and as provider of tools for its production.

Numerical representation asserts that new media objects are formally describable and can be manipulated (Manovich, 2001). Fitting this account into the analysis of the Internet Art, these works are also programmable and based on code. Computability — i.e. reliance on algorithm — is pointed out as the lowest common denominator in Christiane Paul's definition of new media (Paul, 2007).

Modularity sustains that new media objects have a sectional structure of smaller units that may be gathered into objects (Manovich, 2001). Internet-based works (e.g. webpages) are also modular, assembled out of heterogenous elements such as graphics and text, which in turn are made of smaller constitutive units. Modularity is pointed out by the abundance of software and technology included in new media objects that can be manipulated due to numerical representation.

The automation principle suggests that creating, accessing, and manipulating media creations occur through automatic operations based on the principles of numeral representation and modularity (Manovich, 2001). On the Web, code is used to generate automatic formatting templates and information queries.

Variability refers to the versioning of the new media object and its mutable nature allowing it to exist in numerous variants due to controllable numerical representation and modular structure. It calls forth the automation principle when versions are not entirely created by a human author but are automatically generated (Manovich, 2001). An Internet Art work assumes different formal appearances when, for instance, it is experienced through different interfacing browsers, which read and mediate code in diverse ways. Any software in order to survive is dependent on variability as it needs to accept levels of change while avoiding dissonance in function and meaning by remaining based on its earlier variants.

Lastly, transcoding literally refers to media that are computerized and translatable between mutually influenced cultural (tangible) and information (digital) formats

(Manovich, 2001). Information moves between structures of organization and apprehension, or rather, between forms that are sensuous and "machine-readable" (Manovich, 2001, p. 45). This principle is upheld by visualization systems (interfaces) that translate code into apprehensible formats.

Interactivity

Lévy sustains that evaluating the interactivity of a medium or communications system requires analyzing the affordance of appropriation and personalization of content, and the reciprocity system of dialogue between two or more things (Lévy, 2001). Interactivity resurfaces in Lévy's virtuality theory as it relates to the process of finding solutions to a problem (actualization), of developing new ways of observation, design and evaluation of reciprocal and communicative relations (Lévy, 2001).

Much of the interest in Internet Art is due to the potential of interactivity reinforced by technological developments rooted in last century's "questioning of the role of the artist, the work, the audience, the market and the relationship between art and society" (Huhtamo, 1995). Interactivity is crucial for users to form a relationship with what may seem vague and immaterial on the screen. Thus, content on the Internet is effective when the relationship between interactant, machine, and network is established, which resonates with Lévy's description of actualization.

> If the gestalt of the interactive artwork only emerges each time it is realized anew by a recipient, then an aesthetic analysis of interactive art must look beyond the formal structure and interpretability of the interaction proposition produced by the artist, for the aesthetic experience lies in the action of realizing the work (Kwastek, 2013, p. 48).

The concern with interactivity in this research is linked to the analysis of processes of perception and exchange enabled by Internet Art. Technology's influence on the circumstances of perception reflects the ways by which one deals with technology (user experience and degrees of interactivity) and the awareness of it when doing so.

Campanelli defines, citing Lev Manovich, the principle of interactivity as "the founding myth of the Web, and of digital media as a whole" (Campanelli, 2010, p. 90). It is often conceived that the framework of the Web allows multiple modes of interactivity by granting to various extents power of choice and possibilities of performance and exchange, as opposed to older and linear media. However, as theorized by Manovich, the relationship between recipient and interactive media is open and unimpeded to limited extent, for there are only certain predetermined paths one can choose to follow and what one considers their own mind's performance is confined by somebody else — the new media designer (Manovich, 2001). Even if generally taken as a free exploration, most users' interactivity with the Web is somewhat predictable and narrow as "Interactive media asks us to identify ourselves with someone else's mental structure" (Manovich, 2001, p. 61) — that of the media designer. It is sustained that possibilities on the Web are built to obey mental functions and externalize and objectify thinking, as a reflection of modern society's demand for standardization (Manovich, 2001). Mental processes are objectified by being equated to visual forms which "can easily be manipulated, mass produced, and standardized" (Manovich, 2001, p. 60), calling forth new media's automation principle. In this sense, the private becomes public and standardization exerts control over individuality (free interactivity). Manovich's myth of interactivity is sustained by three ways of expropriation appointed to the Web: imagination is numbed as viewers are forced to look; subjectivity is paralyzed by fixed and pre-set navigation paths; and the private dimension (mental processes) is seized and made public (Campanelli, 2010).

The myth of interactivity also calls forth the discussion of the recipient as co-author and collaborator or what has been referred as the "practical death of the author" and the "disintegration and mutation of the artist" (Shulgin, Bookchin, Blank, & Jeron, 2001). Artworks based on interactive media allow the recipient to separate the work from its producer and liberate it from the interpretative limits imposed by the authorial figure. Therefore, every actualization of a work produces meaning, for it is brought from the virtual domain and given a 'here and now'.

Manovich distinguishes between closed and open interactivity: the former refers to performance through choices designed in advance and the latter implies a complex relationship between recipient and media in which content is mostly not predesigned, being rather responsive to the user's performance and generated in real time (Manovich, 2001). Campanelli also points the roots of the myth of interactivity in the reduction of interactivity to participation or navigation (Campanelli, 2010). Therefore, only a strategy that refuses accepting expectations and canonical ways of displaying and interacting with content can escape this myth. Such strategy would prompt recipients to interact with interfaces more attentively to surpass performance difficulties characteristic of "the aesthetic of failure" (White, 2002, p. 173). Erkki Huhtamo also concedes that choosing preprogrammed paths is not real responsive interaction, and thus should not be the main principle in analyzing interactivity in art (Huhtamo, 2012). However, he recognizes that restricted interactive performance may be deliberately put forth by the artist through a strategy that provides the recipient awareness of the myth of interactivity. Eva and Franco Mattes (0100101110101101.org) concur with this view: "It's not the work of art being interactive; it's the beholder that can use it interactively. Interaction is when you use something in a way that has not been predicted by its author" (Baumgärtel, 2001, p. 206).

To some extent, previously envisioned possibilities of interaction produce a constraining script of performance. Nevertheless, suggesting interactivity starts when freedom of subversive and creative action is allowed means that only an elite of users may interact in this sense with, for instance, Software Art due to familiarity and experience in software manipulation beyond ways predicted during creation. This contradicts the intention of "closing the ever-widening gap between art and everyday life" (Shulgin, Bookchin, Blank, & Jeron, 2001) and define Internet Art as democratically accessible. Moreover, interactivity may be criticized when its processes seek only to facilitate navigation through an interface, rather than being at the service of communication between user and machine. It is thus frequent that interactivity in art is more predictable than experimentally free:

> […] it is a very simple and obvious way for manipulating people. What happens in the case of so-called interactive art is that artists propose an interactive piece and declare: 'Oh, it's very democratic! Participate! Create your own world! Click this button, and you are as much the author of the piece as I am.' But it is never true. There are always authors with a name and a career behind it, and they just seduce people to click buttons in their own name (Baumgärtel, 1997).

This view on dispersed authorship is evident as this type of interactivity is seen as having no input in the creative process and being rather comparable to passive spectatorship through clickable buttons. It implies that there are two different degrees of interactivity, participation and collaboration, which are comparable to Manovich's open and closed interactivity.

Participation, as closed interactivity, is simply partaking in a given proposition through a set of behaviors and paths engendered by predesigned conditions or rules, making the work rather fixed in content and responsiveness. This kind of interactivity equates with Lévy's description of realization — the occurrence of the possible. It implies engagement with an artwork in passive and ephemeral ways without affecting or changing the original work. Participation in art is achieved through explicit actions and implicit (passive) "psychological interaction" (Manovich, 2001, p. 71). In Internet Art, participation is usually explicit, occurring through preset procedures with foreseen outcomes. Historically, participation was accomplished by creating means for the observer's perception, position, and sensitivities, as exemplified by Abstract Expressionism (Kwastek, 2013). It was only later with Happenings, Performance Art, and the concept of social sculpture that the public was envisioned to engage in activities considered part of the artwork or event. Such openness aimed to make space for chance occurrences and free individual creativity in predesigned and controllable processes through structures of rules or directions that determined to a limited extent the outcome of recipient input (Kwastek, 2013).

Collaboration mirrors Manovich's open interactivity and happens when recipients may modify, add or remove data to the artwork, making it an essential part of the aesthetic

process. The involvement of the recipient is accepted as end product itself through unpredictable creation of new forms or concepts (Diamond, 2008). It is "the very essence of the creative procedure where the artist has no pre-conceived ideas of the outcome, which allows more space for the unexpected" (Erőss, 2013). Collaboration also brings forth Lévy's actualization process as it implies a transformation of ideas and production of new qualities informing the aesthetic process. It also carries the notion of recipients becoming co-producers, challenging the traditional concept of authorship based on the control position of one single entity. By comparing Internet Art's collaborative affordance with relational aesthetics, as theorized by Nicholas Bourriaud, it is possible to point a common aim to the creation of conditions for recipients to come together and take part in an action. This allows collaborating recipients to make aesthetic decisions and expand the artwork formally and conceptually.

Examples of collaboration and participation strategies in Internet Art are, respectively, Santiago Ortiz's *Esfera de las Relaciones* and Olia Lialina's *My boyfriend came back from the war*. In the former, Ortiz aimed to include the recipients' commentaries as essential part of the artistic experience, exploring collaboration through the Web as communication channel. Lialina's work makes participation of users a requirement to advance the narrative presented through subjective paths. The user is not allowed to change content as it is only possible to navigate various combinations (versions) of the same content.

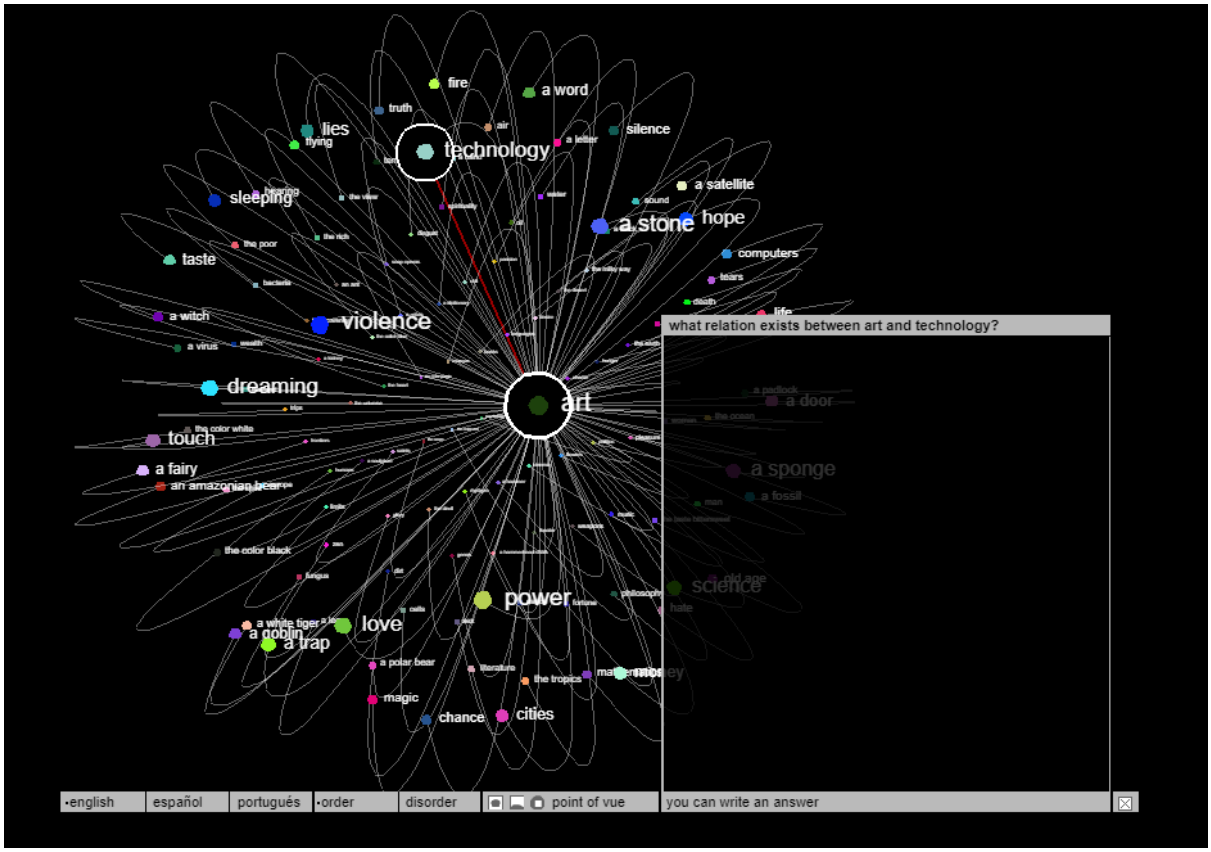
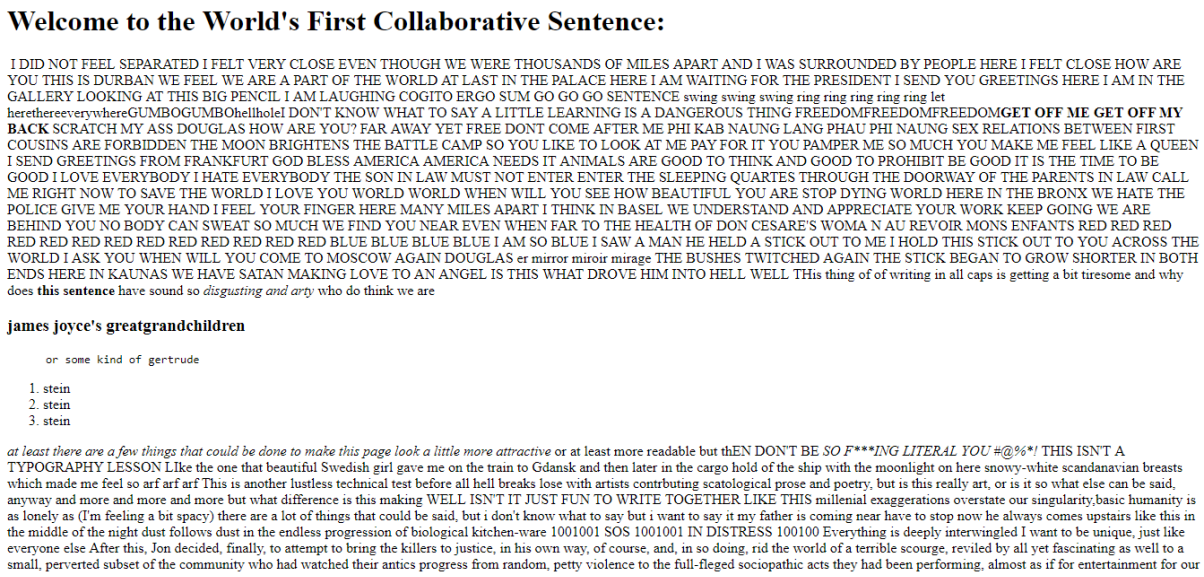


Figure 6: Santiago Ortiz, *Esfera de las relaciones*, 2004. Captured from http://moebio.com/esfera/sphere/esfera.htm

Three interactivity degrees in Internet Art can be traced in relation to the possibilities allowed to the recipient. Proper interactive artworks[5] are open enough to allow recipients to govern their movements and manipulate content, implying that there should be limited preprogramming of interactivity processes (Huhtamo, 2012). Douglas Davis' *The World's First Collaborative Sentence* (1994)[6], for example, allows contributions from recipients to form a never-ending sentence with the only rule being that additions to the sentence could not include periods. Soon, recipients started adding hyperlinks to their own homepages, changing the size of the font and manipulating algorithm in order to type periods in the submissions box so that the sentence would finally end.

[5] Examples are *Great Wall of China* (1995-1999) by Simon Biggs, *Please change beliefs* (1994) by Jenny Holzer, *The World's First Collaborative Sentence* (1994) by Douglas Davis, *One-line Project* (1999) by John Maeda, and *They rule* (2001) by Josh On.

[6] http://artport.whitney.org/collection/DouglasDavis/live/



Welcome to the World's First Collaborative Sentence:

I DID NOT FEEL SEPARATED I FELT VERY CLOSE EVEN THOUGH WE WERE THOUSANDS OF MILES APART AND I WAS SURROUNDED BY PEOPLE HERE I FELT CLOSE HOW ARE YOU THIS IS DURBAN WE FEEL WE ARE A PART OF THE WORLD AT LAST IN THE PALACE HERE I AM WAITING FOR THE PRESIDENT I SEND YOU GREETINGS HERE I AM IN THE GALLERY LOOKING AT THIS BIG PENCIL I AM LAUGHING COGITO ERGO SUM GO GO GO SENTENCE swing swing swing ring ring ring ring ring let herethereeverywhereGUMBOGUMBOhellholeI DON'T KNOW WHAT TO SAY A LITTLE LEARNING IS A DANGEROUS THING FREEDOMFREEDOMFREEDOM**GET OFF ME GET OFF MY BACK** SCRATCH MY ASS DOUGLAS HOW ARE YOU? FAR AWAY YET FREE DONT COME AFTER ME PHI KAB NAUNG LANG PHAU PHI NAUNG SEX RELATIONS BETWEEN FIRST COUSINS ARE FORBIDDEN THE MOON BRIGHTENS THE BATTLE CAMP SO YOU LIKE TO LOOK AT ME PAY FOR IT YOU PAMPER ME SO MUCH YOU MAKE ME FEEL LIKE A QUEEN I SEND GREETINGS FROM FRANKFURT GOD BLESS AMERICA AMERICA NEEDS IT ANIMALS ARE GOOD TO THINK AND GOOD TO PROHIBIT BE GOOD IT IS THE TIME TO BE GOOD I LOVE EVERYBODY I HATE EVERYBODY THE SON IN LAW MUST NOT ENTER ENTER THE SLEEPING QUARTES THROUGH THE DOORWAY OF THE PARENTS IN LAW CALL ME RIGHT NOW TO SAVE THE WORLD I LOVE YOU WORLD WORLD WHEN WILL YOU SEE HOW BEAUTIFUL YOU ARE STOP DYING WORLD HERE IN THE BRONX WE HATE THE POLICE GIVE ME YOUR HAND I FEEL YOUR FINGER HERE MANY MILES APART I THINK IN BASEL WE UNDERSTAND AND APPRECIATE YOUR WORK KEEP GOING WE ARE BEHIND YOU NO BODY CAN SWEAT SO MUCH WE FIND YOU NEAR EVEN WHEN FAR TO THE HEALTH OF DON CESARE'S WOMA N AU REVOIR MONS ENFANTS RED RED RED RED RED RED RED RED RED RED RED RED RED BLUE BLUE BLUE BLUE I AM SO BLUE I SAW A MAN HE HELD A STICK OUT TO ME I HOLD THIS STICK OUT TO YOU ACROSS THE WORLD I ASK YOU WHEN WILL YOU COME TO MOSCOW AGAIN DOUGLAS er mirror miroir mirage THE BUSHES TWITCHED AGAIN THE STICK BEGAN TO GROW SHORTER IN BOTH ENDS HERE IN KAUNAS WE HAVE SATAN MAKING LOVE TO AN ANGEL IS THIS WHAT DROVE HIM INTO HELL WELL THis thing of of writing in all caps is getting a bit tiresome and why does **this sentence** have sound so *disgusting and arty* who do think we are

james joyce's greatgrandchildren

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or some kind of gertrude
```

1. stein
2. stein
3. stein

at least there are a few things that could be done to make this page look a little more attractive or at least more readable but thEN DON'T BE *SO F***ING LITERAL YOU #@%*!* THIS ISN'T A TYPOGRAPHY LESSON LIke the one that beautiful Swedish girl gave me on the train to Gdansk and then later in the cargo hold of the ship with the moonlight on here snowy-white scandanavian breasts which made me feel so arf arf arf This is another lustless technical test before all hell breaks lose with artists contrbuting scatological prose and poetry, but is this really art, or is it so what else can be said, anyway and more and more and more but what difference is this making WELL ISN'T IT JUST FUN TO WRITE TOGETHER LIKE THIS millenial exaggerations overstate our singularity,basic humanity is as lonely as (I'm feeling a bit spacy) there are a lot of things that could be said, but i don't know what to say but i want to say it my father is coming near have to stop now he always comes upstairs like this in the middle of the night dust follows dust in the endless progression of biological kitchen-ware 1001001 SOS 1001001 IN DISTRESS 100100 Everything is deeply interwingled I want to be unique, just like everyone else After this, Jon decided, finally, to attempt to bring the killers to justice, in his own way, of course, and, in so doing, rid the world of a terrible scourge, reviled by all yet fascinating as well to a small, perverted subset of the community who had watched their antics progress from random, petty violence to the full-fleged sociopathic acts they had been performing, almost as if for entertainment for our

Figure 7: Douglas Davis, *The World's .* Captured from http://artport.whitney.org/collection/DouglasDavis/live/Sentence/sentence1.html

Conditioned interactivity (navigation) occurs when an artwork is actualized through participatory exchanges ruled by conditions imposed by the artist. Procedural conditions dictate the engagement of the recipient and the artist's authorial signature is maintained as the entity who ultimately controls the form and framework of the artwork. Andy Deck's *Open Studio* (2001)[7] illustrates this interactivity degree, for the recipient can only create digital images from a palette of colors and shapes made available by the artist.

[7] http://artcontext.net/act/16/openStudio/indexEn.php

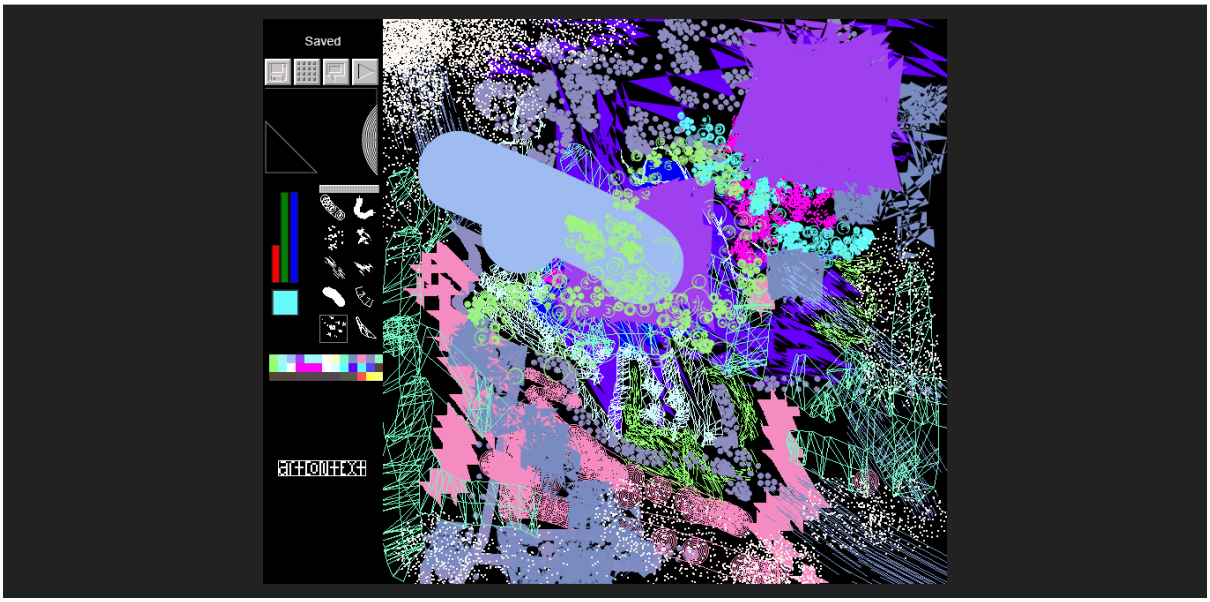

Figure 8: Andy Deck, *Open Studio*, 2011. Captured from http://artcontext.net/act/16/openStudio/indexEn.php

Lastly, denied interactivity occurs when no conventional visual references of navigation on the Web are made available and the user is left disoriented (Huhtamo, 2012). This degree of interactivity finds resonance with Michele White's aesthetic of failure as it purposefully removes user-friendly conventions of interactivity and stimulates a critical consciousness toward the structural properties of the Internet and users' behaviors. This is the case of most works by JODI which disturb normal performance by simulating crashes, viruses, and error messages to emphasize that behind conventional interfaces there is code at work.

Interactivity in Internet Art can also be analyzed in terms of ephemerality. Ephemeral interactivity[8] occurs when the recipient's input is not registered in the final form of the artwork. Olia Lialina's *My boyfriend came back from the war* represents this ephemerality, for after each actualization the artwork returns to its original state conceived by the creator. Constant actualizing interactivity, if allowed and preconceived, affects the

[8] Examples are *Unfolding Object* (2002) by John F. Simon Jr., *My boyfriend came back from the war* (1996) by Olia Lialina, *D-TOY 2.502.338* (1999) and *Lifesavers* (1999) by Peter Luining.

appearance of the artwork in a permanent manner and prevents the artwork to be restored to its earliest form. Recipient input remains registered in the artwork's form. Works such as Douglas Davis' *The World's First Collaborative Sentence* (1994) are in constant mutation and are conceptually molded by the contributions and reconfigurations of the interactant.

Giving freedom of interaction to the recipient disrupts the traditional sense of the artwork's narrative structure, for it is possible to arrange its parts and follow various paths. This tearing apart of structure may be anticipated and encouraged by the creator of the work and places the audience in an active role of creative actualization and production of meaning. Kwastek defines interactivity as a dialogue with media consisting of political acts for allowing the recipient to have input into the circumstances upon that which they think and behave (Kwastek, 2013). If interactive artworks actualize with each engagement, aesthetic experience exceeds the formality and propositions advanced by the artist during production. Thus, the aesthetic experience is to be found in the artwork's actualization and in the behavior of the recipient.

Visualization systems

If all Digital Art is software-based and software is not apprehensible to the senses, there is a need for a mediation that concedes it a form. The fact that Internet Art is visible on a screen means that its apprehensible form is the front page of an underlying structure of technology and communication. In this case, the artwork is both the form made apprehensible — its "'optical' aesthetic" (Greene, 2004, p. 162) — and its hidden rules and structures of code.

Since aesthetic experience on the Web is dependent on form, it is necessary to introduce the concept of interface. Campanelli suggests that when one visits a webpage, they do not relate directly to the flow of data in its raw algorithmic state, thus the interface may also be understood as producing a myth in the sense of offering information in ephemeral

and fixed forms of sensuous nature (Campanelli, 2010). If data is in constant flow the form presented by the interface is a necessary myth, a way of "imposing human power upon technology" (Campanelli, 2010, p. 104). It is such a fiction that in Web-based content forms presented by the interface produce unique user experiences and if the interface is changed it affects data and its experience (Manovich, 2001). If it was not for this myth, data would not be translatable to stable and familiar forms and would only be readable by machines: "Without form, there can be no knowledge, nor can there be aesthetic experience" (Campanelli, 2010, p. 110). However, instead of a fiction, the interface may be understood through Manovich's transcoding principle insofar as it designates in a technical sense the translation or adaptation of new media objects between formats and devices. Under a broader understanding, transcoding may also refer to how digitalization informs and reshapes new media and culture. Christiane Paul also speaks of this when proposing the concept of neomateriality to refer to the objecthood of digital media that "embeds, processes, and reflects back the data of humans and the environment" while simultaneously shaping it (Paul, 2015).

In Lévy's theory of the virtualization of the body, the author questions what makes the body visible. If only the surface of the body is apprehensible, medical imagery capable of revealing the internal body is also an interface working in accordance to the transcoding principle, for it deterritorializes things and translates them into visible forms that would otherwise be inapprehensible: "Every new visualisation system adds a new skin, a new visible body" (Lévy, 1997). Manovich further suggests that interfaces mediate "code that carries cultural messages" (Manovich, 2001, p. 64) and is translated to provide fixed forms of data according the interface's "own model of the world, its own logical system, or ideology" (Manovich, 2001, p. 64). If transcoding is governed by the ideology of the visualization system, the interface cannot be understood as a clear window that merely showcases information in its raw state; it rather imposes its own logic on the way one apprehends and thinks about information.

Although Pierre Lévy does not generally speak of the virtual in relation to digital technology, a parallel is drawn with his philosophical usage: "the image is virtual in the hard drive and actual on the screen. Virtualisation is digitalisation and actualisation is display" (Lévy, 1997). The interface through which data is actualized (displayed and apprehended) is the means of interactivity (i.e. interactivity is actualization): "Interacting with the digital model users explore and actualise a virtual world" (Lévy, 1997).

Lévy goes further to theorize the deterritorialization phenomenon in relation to the viewing regime through interfaces: "every bit of information on the Net is virtually close to me and actually in my hands when I select or browse it, even if it is really (in the physical space) on another continent" (Lévy, 1997). The Web, based on HTML, is composed by the hyperlink, an interactive reference through which further information can be accessed and structured. The hyperlink is called into this deterritorialization for collapsing boundaries in cyberspace and endowing plastic and dynamic traits to digital data: "Hyperlinks between documents turn the inside outside and the outside inside" (Lévy, 1997). Through the Web's hypertextual structure, users actualize information and determine to some length the organization of navigation choices or paths and can even become co-authors by contributing to the hypertext (Lévy, 1997).

Richard Colson's account of interfaces informs about their variable characteristics and classification. The interface is understood as a link between two different worlds with the aim of creating equivalents of things on either side (Colson, 2007). In terms of the experience through interfaces, the contribution of the recipient is determined by the different routes made available through the content. Paths and choices allowed or denied to user performance determine the level of engagement in deep or superficial ways, as well as encourage or discourage further visits. Colson classifies interfaces based on the possibility of contribution by recipients. At one extreme, the interface asks nothing from the recipient as they are only observers. The recipient can have a limited role, a somewhat valued role, be one recipient of many, and at the other end of the spectrum they are given full governance of performance and its outcomes (Colson, 2007).

The structure of the interface is also referred as it is important to its operation and perception: "Repeated material, a lack of flexibility, the absence of feedback, and an attitude that is oblivious to the richness of human sensibility are all going to have a negative effect" (Colson, 2007, p. 146). An open structure allows several ways of navigating content, as opposed to a linear selection in which no variation is conceded and routes are rigidly defined. At the middle of the structure spectrum recipient performance is remembered and paths are suggested, maintaining the relationship between recipient and content in consonance with choices made previously (Colson, 2007).

3. CASE STUDIES

Internet Art poses several challenges to mediation efforts related to its nature, behavior, and experience. It usually requires prior knowledge and engagement with interface interactivity and inner mechanisms and functions of the Internet, which can result in a sort of elitism based on technological competence. Christiane Paul categorizes the museum audience into four groups: experts with considerable knowledge of art; informatic excluded people who avoid art produced by computerized means; young audience familiar with virtual worlds, interfaces and navigation, but not particularly familiarized with art produced and presented through these means; and interested people who are willing to interact with and learn about art that makes use of technology, but needs assistance in doing so (Paul, 2008). While it is not problematic when Internet Art is displayed in new media festivals and specialized institutions that attract a niche audience, such as the Electronic Language International Festival (FILE) in São Paulo, the ZKM Center for Art and Media in Karlsruhe, and the Ars Electronica center and festival in Linz, the common public of a museum or gallery may not be acquainted with new media and may thus not want to engage interactively. Curatorial work needs to consider interface designs to accommodate a comfortable interactive experience with the audience.

Time investment in experiencing Internet Art differs between tangible and virtual exhibition spaces. A solitary online experience in front of a personal computer or any other device is as lasting as the recipient wishes, whereas in a museum or gallery, experience may be conditioned by the conventional conduct of distanced reception, especially in white cube spaces traditionally designed for contemplation. The interactive experience of an artwork is a new mode of reception that subverts the often-encountered signage reminding the public not to touch, step on or photograph artworks.

Further difficulties arise from works that require interactive engagement for actualization. Internet Art's mediation must foresee this requirement to allow audience exchange and sometimes unpredictable engagement. As Christiane Paul stated, "It can be a frustrating

experience to watch someone else navigate a work and wait for one's turn" (Paul, 2007, pp. 261-262). However, observing another visitor's engagement can be didactic to someone unexperienced with digital technology.

This research departs from the premise that Internet Art works are not limited to be experienced on the Internet, as opposed to views considering that Internet Art functions only on the Internet and cannot be experienced in any other context. Although the Internet may be an effective setting of display for these works in their original context, Internet Art is not exclusively effective on the Internet and can inhabit other environments.

The difficult relationship between Internet Art and institutions is reflected by curators' complaints about tangible settings not being best suited for the display of this art, the impossibility of storing and commercializing it, and the lack of interest of the public (Quaranta, 2010). The issue is further challenging if art institutions maintain the definition of artwork based on a static and unitary object produced for contemplation.

It has been argued that the inclusion of Internet Art in traditional art spaces may negatively impact the artistic practice, for the institutional system has its own "formal and political aesthetic strategies" (White, 2002, p. 176). The first artists working on the Internet refused yielding to the institution while resorting to the Web's potential of mediation. Prior to Internet Art, other art forms of difficult accommodation in institutional settings yielded to the museum and gallery frameworks. Computer Art from the 1960s and 70s was usually displayed as prints and interactive works of the 1990s were oftentimes displayed according to conventions of exhibiting installation art in museums and galleries of the 1960s (Baumgärtel, Christ, & Dressler, 2008). Video Art was also not embraced by institutions until works were versioned into large-scale formats of projection and installation, ultimately bringing it closer to the traditional art object status and transferring its value onto something auratic and easily collectible and commodified.

Although removing Internet Art from the Web may mean displaying it in an unnatural and decontextualizing space and essentially making a spectacle of it (Dietz, 2008), it may be successful through a change of structure and meaning, which resonates with translational work as theorized by Walter Benjamin:

> A real translation is transparent; it does not cover the original, does not block its light, but allows the pure language, as though reinforced by its own medium, to shine upon the original all the more fully. […] a translation touches the original lightly and only at the infinitely small point of the sense, thereupon pursuing its own course according to the laws of fidelity in the freedom of linguistic flux (Benjamin, 1996, pp. 260-261).

Through Benjamin's words, curatorial work can be assessed in an extended sense aiming to the creation of contexts in which filtered contents (translations) are presented. A good translation maintains fidelity to the original, keeping the meaning of its source without any addition, subtraction, reduction or emphasis of its parts. The translation's own course refers to its transparency — while maintaining fidelity to the original, it gives way to the structure and conventions of the target language. Variability and modularity, two of Manovich's new media principles, are present in this point of contact between original and translation for allowing a work's reconfiguration while still upholding the original sense. Even though Internet Art is variable in nature and adaptable to various configurations, it is still dependent on context as a source of information about the work's origins, structure, and language: "focus has to shift away from the notion of technology and lead to art and the processes bound to its production and reception on the Internet" (Hochrieser, Kargl, & Thalmair, 2009, p. 53).

Developing strategies for tangible displays of Internet Art is a curator's duty, however, artists must also anticipate how their work ought to maintain its characteristics and context when displayed away from the computer screen. Thus, envisioning new modes of display should ideally be a collaborative task between curator and artist.

Online Mediation

äda'web

The äda'web project was founded in 1994 by curator Benjamin Weil and entrepreneur John Borthwick with the aim to produce and showcase projects in collaboration with contemporary artists. In the course of its existence it produced web documentaries, online conferences, and a website for the display of about eight projects. It ran until 1998 in an important period in the history of the Internet for coinciding with its development and broad diffusion as a mass communication channel.

Its concept was predicated by the idea of mediating artistic experience by means peripheral to the art world. Benjamin Weil's conviction was that the institutional domain of art obstructs access to a large audience due to its context's prejudice (Quaranta, 2002). Thus, the Web appeared as a neutral public space where both artists and visitors were allowed take ownership of their own experiences while exploring and critically assessing the Web as it was still in development and not wholly captured by commercial interests. Its basis on the concept of a digital foundry means it was a studio for experimentation informed by the idea of knowledge exchange between artists and people devoted to learning programming languages and researching the network and hypermedia structure of the Web.

The innovation was the reunion of both well-established and emerging contemporary artists, either acquainted with the Web or not, in a problematic period for Internet-related practices to be considered as art (Dewdney & Ride, 2006). Establishing a dialogue between these two parts was important to dissolve discrimination and glorification of technology and its mastery. By not making any direct reference to the art world, äda'web surpassed constraints imposed by the art system and evaded being associated to a commercial venture promoting the commodification of a new kind of art. It was meant to

be more about enabling experiences online through unusual interactive ways rather than delivering information.

Its website interface contains navigation information; however, it discards the typical table of contents of homepage designs and turns navigation into interactivity for its user-unfriendliness and non-intuitive structure. Content of the constituent pages does not appear to follow a specific hierarchical order and does not have a unifying look. In spite of this, there are six sections on the website: usage, project, exchange, nota, influx, and context. Usage is the backstage of the website and contains descriptions of the projects, e-mail addresses of members, an archive of press reviews, newsletters about platform updates and new projects releases, an internal search engine, a demographic survey of the visitors, and a directory to other websites of interest, such as artists homepages and essays. Project features online projects exclusively released by *äda'web*. Exchange was an online store with merchandise by and about artists. Nota was a forum for visitors to make public comments about the website and projects. Influx contains works that function both online and offline. Lastly, Context announced events and provides background information about the artists.

Figure 9: *äda'web* homepage, captured from http://www.adaweb.com/home.shtml

Interactivity with the website and its projects may be considered unexpected comparatively with the rest of the Web. The engagement required from visitors has produced input that is contextual to the projects as an important part of their actualization processes.

Jenny Holzer's project, *Please Change Beliefs*, was the first project on äda'web. Several websites were contacted to include banners with truisms linking back to Holzer's project on äda'web. Users did not know who the author was or that it was part of an artistic project, which resonates with the artist's way of working with other media by inserting it in the landscape of public space. The main page of the project presents some of the most famous aphorisms from series such as *Inflammatory Essays* (1979-1982) and *Truisms* (1977-1987) in plain typography. The "Change" part is collaborative in allowing visitors to select an aphorism from a selected list and improve or replace it and have it recorded to a master list of contributions. This was based on Holzer's work with posters on the street in her early career, which people would modify. It also gave way to unexpected interactivity when, for instance, visitors would leave hyperlinks to their own online projects or websites (Quaranta, 2002).

Blindspot, created by writer Darcey Steinke, is a project exploring literature and creative writing and their online presentation by taking advantage of the Web's functionalities. It is an interactive multimedia book with text, images, and sound. The text contains hyperlinked anchors to other parts of the project, functioning as reference footnotes to further information. Text was also contextual in size and emphasized certain aspects of the narrative.

Doug Aitkin, fashion photographer and video artist, developed *loaded 5x*, a non-linear narrative in consonance with affordances of the Web. The visitor is introduced firstly to the final part of the narrative, from where they can jump to any other of its parts knowing they intersect at different places. The navigation instrument, as opposed to the traditional way of reading a book through indexed chapters, is an interactive map with hyperlinks.

Matthew Ritchie's *Hard Way* presents an approach to game-like storytelling taking into consideration the collaborative input allowed to the recipient on the narrative. Advancing through the narrative, the recipient may learn about the characters, analyze the map of the whole narrative, and choose to take part in it. Visitors include themselves on the narrative as avatars by answering a questionnaire that will assign them one of the characters according to their personality. They may further collaborate by engaging in a BBS discussion with other people assigned the same character in order to develop the narrative. Image loading time is slow and phased to pass a cinematic impression and allow time to read the text before advancing. The icon on the left bottom side links to a map that enables visitors to locate themselves in the narrative and jump to any part.

New media's transcoding principle, pointed out by Lev Manovich, in which media influences culture at large and vice-versa may be appointed to äda'web for its research on culture as a place where ideas can be formulated and applied without constraints through the Web's affordances. Illustrative of this is how Benjamin Weil credits Jenny Holzer's project on äda'web for the invention of online banner advertising (Verschooren, 2007).

Presenting Internet Art works on the Web led to the creation of an art world set apart from the institution and the legitimating processes of the museum and gallery systems (Paul, 2007). While aiming to distance itself from the imperatives of the art world, äda'web stood as an open and neutral platform for the development of interdisciplinary and collaborative projects between practitioners with different backgrounds and skills in a time when it was difficult to point to earlier models for this kind of work relating art and the Internet.

One can discuss the importance of a curatorial effort regarding work on the Web, as Benjamin Weil's curatorial figure stood for that of a close collaborator of the guest artists, rather than solely that of a selector of content or commissioner (Verschooren, 2007). In

fact, commissioning would not describe the strategy of äda'web, for its foundry framework is instead informed by the idea of an experimental laboratory in which invited artists get acquainted with the Web and creatively react to it by proposing collaborative projects to the whole team.

An important aspect of this strategy was the reunion in a single platform of multiple projects and hyperlinked resources documenting the emergent Internet Art scene. Given the broad diffusion and plurality of the Web in terms of content, managing and navigating through information becomes a difficult task, thus it becomes crucial to maintain quality and filter the overwhelming quantity of material. Visitors of äda'web benefitted from this selection of contextualizing information while being able to keep up with the increasing number of Internet Art works on the Web. This is also an argument in favor of institutional support of efforts of selection and mediation of artworks in online settings. While contradicting early Internet Art practitioners who endorsed an uncensored and unmediated experience of their art, affiliation with institutional names gives status and brings this art up on the hierarchy of practices besides providing reliable curated content.

The cutting of äda'web from the AOL's non-revenue initiatives stands for a general failure of its economic strategy to generate income and justify private investment. It also stands for the art institutional system's lack of acknowledgement of the value of experimental artistic work involving the Web. Reasons include the assessment of this art as being of lesser status and its decontextualization when affiliated with the institutional world, which may not be a requirement since Internet Art can be mediated outside the institutional framework, benefitting from greater freedom. Independent online exhibitions tend to be organized by independent curators and are more experimental since they avoid pressure by patrons to consider the traditionally broad museum audience.

After losing its funding äda'web was donated to the Walker Art Center in 1998, which has archived the projects in its collection and online server[9]. Its mission involves maintaining äda'web in order to keep all the projects together and accessible to the public, while also preserving the knowledge of the creative process it entailed and its social and historical contexts (Atkins, 1998).

äda'web also brings about the issue of obsolescence on the Web as many of its hyperlinks are now broken, leading to locations where original content longer exists or has been moved elsewhere. While a part of äda'web has been preserved, its online context has since been changing, which compromises the entire project. Benjamin Weil's position is that äda'web became an archive rather than a live website, and as it ages its cultural context mutates bringing its components to eventual disappearance: "Speed of access is different, screen definition is not the same, processing speed has changed, etc." (Quaranta, 2002).

By displaying Internet Art on the Web, artworks remain in their original contextual environment. These display efforts may remain accessible long after creation or, at least, until support ceases and technological obsolescence becomes a threat. While the audience is not required to go to a museum or gallery and may access the artwork from personal computers anywhere and at any time, there is limited mediation between artwork and viewer. Accessibility, navigation, interactivity, and technology requirements (e.g. browser versions and plug-ins) are thus dependent on the viewer.

Addressing the discussion of the aura of the artwork in digital conditions of reproduction, one can sustain that a website has an auratic quality through a reconsideration of the original concept proposed by Benjamin. In traditional cult value, art is valued for its background in tradition and is linked to ritual practices (Benjamin, 2002). By replicating a website, the difference between original and reproduction is not destroyed but faded. The

[9] http://adaweb.walkerart.org/

aural quality can be restored through the exhibition value, for its "here and now" is not lost but "depreciated" (Quaranta, 2010, p. 158). Websites also have a here and now, although they may be simultaneously in front of the viewer and stored on a server on any other geographical location:

> As a whole, a website can be described as an installation: it locates a series of fragments (documentation of invisible originals) in a specific, unique place. […] This 'aura' is the result of a unique relationship: the one between the content of the website and its location (Quaranta, 2010, pp. 159-160).

If websites are auratic they may be collectible, although under a different understanding of ownership. While something unique is owned, it is also freely accessible and its content may be easily copied (Quaranta, 2010). Moreover, owning an Internet Art work usually does not mean owning a work in its final state considering the processual and actualizing nature of some artworks. Instead of acquiring fixed objects with clear boundaries, ownership of such works may be deemed as facilitating their processual development.

The mode of reproduction has changed from mechanical to digital since Benjamin's essay on reproducibility. It has been argued that in the age of digital reproduction there is no distinction between original and copy regardless of medium. Original and copy are given a fictitious status and no longer make sense: "Digitalization transfers this aura to the individuated copy. Artist and viewer perform together. The dead replica and the living, authentic original are merging" (Davis, 1995, p. 381). This means that every iteration of a digital artwork is a morphing of the original, thus its aura is not static but mutable.

Rhizome ArtBase

Rhizome was founded by Mark Tribe in 1996 as an electronic mailing list including a few of the first contemporary artists working with emerging technologies, such as the Internet, and intended for the discussion of New Media Art (Galloway & Tribe, 2001). Later, as it acquired the status of a non-profit organization, in affiliation with the New Museum of

Contemporary Art (2003), its mission comprises the examination of the sociopolitical and aesthetic implication of emerging technologies from an artistic perspective (Corcoran, 2013). Besides fostering critical dialogue, it aims for the preservation of art and provide open online access to it.

The Rhizome ArtBase was created in 1999 as an online archive of New Media Art works of potential cultural value, providing artists server space for storage and ensuring long-term preservation and public online access to works (Fino-Radin, 2011). Ultimately, the archive strives to preserve the original context of these works in order to allow research and interaction with their history (Fino-Radin, 2011). The majority of artworks in the ArtBase are digital-born and employ emerging technologies and materials such as software, code, browsers, websites, games, and moving images. As such, guaranteeing longevity in accurate archival formats allows researchers to observe and interact with works in their original form and environment.

Additions to ArtBase are made through artist submissions, commissioning and invitation. Submissions are reviewed by the curatorial team of Rhizome and the evaluation of the works significance employs criteria such as aesthetic innovation, conceptual sophistication, political impact, relevance to the discourse on new media art and contemporary art, provenance, and reference to digital and Internet culture (Rhizome, 2002).

The ArtBase collection consists of linked objects and cloned objects. Linked objects are added to ArtBase through metadata and a hyperlink to the work on external servers. Cloned objects are added to the archive in the format of copies and are stored on Rhizome's server. These copies serve as backups if the original version or variant of the works become obsolete or inaccessible (Rhizome, 2002).

Storage of artworks in the ArtBase server begins with the creation of a descriptive record including metadata about the artwork's context, content, and technology obtained

through the Artist Questionnaire[10], which is then reviewed by Rhizome. The questionnaire also informs about the artist's opinion regarding appropriate preservation strategies for their work. To combat obsolescence and document artworks, records include detailed descriptions of technical properties, behaviors, links to commentary, critiques, or discussion of the work, screen captures, and audio recordings and moving images when applicable (Rhizome, 2002).

The collection preservation is a primary focus of the archive's mission since it is anticipated that all works will eventually be menaced by technological obsolescence. Based on the artist's view outlined in the questionnaire, the ArtBase employs four preservation approaches upheld by the Variable Media Initiative – documentation, migration, emulation, and reinterpretation (Fino-Radin, 2011).

The original source code is considered to be intimately related to the artwork's technological and cultural context of production. When intervention is required for the preservation of an artwork in order for it to sustain its accessibility in contemporary conditions and extend its longevity, a separate copy is created and modified as required, while the original files remain intact (Rhizome, 1999).

Since conventions and elements of interface design evolve with time, these changes of conditions affect experience while navigating and understanding the context of artworks. To present works such as I/O/D's *The Web Stalker*[11] in original conditions Rhizome introduced *oldweb.today*, a software strategy that mediates online artworks in contemporary environments through emulation of historic browsers such as Mosaic and Netscape. Besides restaging original environments, which provide significant contextual information, it allows access to works with properties that are not supported by current browsers.

[10] Based on the Variable Media Questionnaire (http://variablemediaquestionnaire.net/)
[11] http://archive.rhizome.org/anthology/webstalker.html

The ArtBase is regularly maintained through inventory searches to evaluate the viability of the artworks and accuracy of their records. These inventories conducted ensure that all links to works and external contextual information are active. Manual searches for inactive links and outdated information can be conducted by users and members of Rhizome through an error reporting system (Rhizome, 2002).

Rhizome does not possess storage infrastructure for tangible objects, which fall outside the scope of the collection policy and capacity of the ArtBase as an online archive. This may prove problematic as new media art is not wholly digital but may involve tangible components, as contended by Manovich's transcoding principle and Lévy's offline virtual worlds. Many works contained in the ArtBase include tangible elements, however, these exist in the collection only as documentation – descriptions, images, and videos (Fino-Radin, 2011). While documentation is valuable to the public as representation of the works, it fails as the sole preservation strategy of artworks. One way around this limitation is the adoption of an approach of creating, gathering, and keeping information required for reference and for the possibility of recreating the artwork in the future.

Another aspect of artworks not acquired by ArtBase is the ephemera relating to the creative and production processes. While this kind of documentation is generally not collected by institutions for its quantity and limited resources and infrastructure, it is unquestionable that it will be considered valuable in the future, either when the artist gains considerable recognition or passes away. This problematic is particularly alarming considering the prospect of survival of digital ephemera in comparison to tangible ephemera such as notes, studies, and sketches.

Since the ArtBase is entirely online, its strategy has many positive aspects. Its artworks can be accessed and experienced online on their native context and in some cases on legacy technological conditions through emulation, allowing a contemporary view into their original form. New paradigms of preservation and mediation are employed in order for the archive to provide long-term accessibility to artworks. Users are allowed to gain a

deep understanding of the works' context in the cases of works that rely on real-time data, refer to external content, or exist in various online locations. The organization of the archive draws from widely available tools of electronic communication, such as the directory, the database, and the Bulletin Board System – tools which may be considered digital counterparts of the gallery, laboratory, and community center.

The ArtBase also enables the organization of exhibitions featuring artworks it contains. Several cases have been developed online and in tangible venues, such as *Net Art Anthology* (Rhizome.org, 2016-2018), *Rhizome ArtBase 101* (New Museum of Contemporary Art, 2005), and *Electronic Superhighway* (Whitechapel Gallery, 2016; MAAT, 2017-2018). In 2010 it also became possible for members of Rhizome to select works from the ArtBase collection to create Member Exhibitions[12] with thematic or authorial selections of works. This attests to the value of audience engagement and experience of the archive in new and unexpected ways. Moreover, in 2012 Rhizome's curators have also put up their own collections from ArtBase and made them publicly available[13]. These are thematic online exhibitions – Formalism & Glitch, Code, Digital Archivism, Tactical Media, Net.art and Hypertext, Rendered Reality – providing a valuable mediation and a rich context for audiences unfamiliarized with the art Rhizome devotes itself to collect, preserve, and mediate. This online curatorial mode involves much of what defines traditional curatorial work from selection of works and their logical organization to the production of art-historical discourse. The ArtBase is therefore an educational, research, and learning tool (Corcoran & Graham, 2016).

The current underdevelopment state of digital art preservation and the obsolescence of its strategies are due in part to the infancy of the artistic genre and field of studies and the instable technological progress (Fino-Radin, 2011). Rhizome and its initiatives play a relevant role in this context, for mirroring a laboratory where research and theory are

[12] http://classic.rhizome.org/artbase/exhibitions/
[13] http://classic.rhizome.org/artbase/

developed, while ensuring the practical employment of tools and strategies of preservation and mediation regarding real case studies.

By affiliating itself with major art institutions and associations, Rhizome's mission includes the development of coordinated mediation and preservation strategies, while it also contributes to its own credibility and adds to the legitimacy in the extensive art world of the art practices it engages with. As a collection, the ArtBase challenges the definition of what may be considered a collectible artwork and a collection itself as it is operates on the free and open Web.

Tangible Mediation

documenta X

documenta presented Internet Art for the first time in its tenth edition (1997) both on-site and online. In line with *documenta*'s mission to sum up production of art every five years and contextualize it considering historical tendencies, the decision to include Internet Art by artistic director Catherine David aimed to challenge elite definitions and boundaries between art practices, and ultimately bring this practice to a larger international public (Huffman, 1997).

The Internet Art works were presented in a separate office-like space designed by Heimo Zobernig and Franz West with computers stations (Jones, 2017). Besides being set apart from the rest of the exhibition events, computers were disconnected from the Internet and the projects presented were only accessible through a Local Area Network[14] (Jones, 2017). Each Internet Art work had its station desk with two computer terminals for access. Each terminal presented only one work and could not be used to access any other work or content online (Huffman, 1997).

[14] Communication network between computers in close proximity, usually used in computer labs, office buildings, and schools.

Besides the on-site inclusion of Internet Art, a website was created for the event including links to the Internet Art works displayed, contextual writings, a message board dedicated to audience input, live web broadcasts of events, and general information such as participating artists and special programs of *documenta X* (Jones, 2017).

Figure 10: *documenta X*, Internet Art section, 1997.
Retrieved from http://interversion.org/documenta-x/

The website was presented as a platform for artistic experiences in relation with the themes and program of Documenta. Its design was based on a window allowing navigation through framed icons working as hyperlinks to internal content. Internet Art works were divided into four thematic sections. Surfaces & Territories included *A Description of the Equator and Some Other Lands* (Felix Stephane Huber, Philip Pocock, Udo Noll, Florian Wenz), *Without Addresses* (Joachim Blank and Karl-Heinz Jeron), *unendlich, fast…* (Holger Friese), *jodi.org* (JODI), and *Location Sculpture System* (Eva Wohlgemuth and Andreas Baumann). In & Out presented *l.o.s.t.* (Hervé Graumann) and *Makrolab* (Marko Peljhan). Groups & Interpretation included Antoni Muntadas's *On Translation: The Internet Project*. Cities & Networks featured Heath Bunting's *Visitors Guide to London*, Matt Mullican's *Up to 625*, and Martin Kippenberger's *Metro-net*.

Another section (More) provided visitors with a listed selection of online projects by the participating artists. The Standards section included hyperlinks to domains about Internet

Art, a few of its supporting institutions, and a discussion forum for artists and curators. The website was also accessible on-site at the exhibition venue.

The *documenta X* website extended the tangible event to a global audience, allowing engagement through networked conditions beyond on-site settings. As a strategy meant to broaden the theoretical scope of *documenta*, it also allowed to take part in the event through conditions specific to the Internet: intimate interactivity and decentralized access (Jones, 2017). The website was intended to run for the three months of the event's duration, after which it was then taken down from the Internet and its contents were copied and transferred to a CD-ROM made commercially available (Jones, 2017). This proved to be a controversial sign of institutional attempt to exert control over Internet Art by assigning it economic value when it had not formerly been considered through economic terms. In an institutional critique about the commodification of the website and the artworks it contained, Vuk Ćosić presented *Documenta Done* (1997), a copy of the *documenta X* website, and circulated the news of an Eastern-European hacker stealing the website. While working as a critique, the gesture resulted to be important in archiving the website and its content and making it accessible to the public. Because it was the only online trace of *documenta X*'s website for almost 20 years, it stands as representation of the institutional failure in safeguarding evidence of digital culture and its difficulty to adapt to the informal context of the Web.

Since its first edition in 1955, documenta has been developed in a spatial relation to the city of Kassel, under the itinerary exhibition model intended to extend the art museum into the public space and life (David, 1997). In *documenta X*'s articulation of heterogenous works in exhibition spaces in Kassel, the Internet Art section had no articulation with other venues, thus being sidelined in the spatial constellation setting of the event, ultimately reflecting its status on the fringes of the institutional system. Besides differentiating status between media, this marginalization neglects possible relations between works in the same context: "Curating net art need not be medium-specific (that is, it can establish connections to other media such as painting)" (Dietz, 2008, p. 82). Internet Art, thus,

remained closed upon itself while *documenta*'s curatorial effort refused its contamination by other artistic practices. This openness would have been beneficial to Internet Art for increasing its public reach and building its status.

The spatial design of documenta's Internet Art section had no currency in the conditions for reception of the works as it rather contributed to their decontextualization. The overall setting as a simulation of an office workspace can be criticized for being an unnecessary recreation of the perceived natural environment for computers and was deemed inadequate by the participating artists who were not consulted for the matter of their works' display (JODI, 1997). The idea of an office environment may have been discouraging for visitors, especially for those unfamiliar with the workings of a computer. Besides proving itself distanced and unappealing to the public, the effort can be assessed as a promotion of the false idea that the artists worked in office-like spaces, when, in fact, computers were in 1997 already present in personal and domestic environments. A better display strategy would involve working individually with artists to determine the best solution to show each work, which would evade the issue of misrepresentation:

> "All the different works disappear in the set up by the one guy who deals with the real space. The real space is of course much more powerful than all these networks. When you are viewing the work you are in the real space. If you only do your work on the net, you become a fragment of the local situation and you can easily become manipulated in any direction." (Baumgärtel, 1997).

Despite the criticism toward the generic simulation of an office environment, the strategy finds some credibility only by prompting visitors to reconsider the traditional idea of an art display space while referencing informational work in contemporary conditions. Moreover, since the works do not necessarily consider the tangible conditions of the exhibition venue, they ultimately do not require any action from visitors other than simple interaction through a mouse and keyboard. Thus, if a deeper criticism is to be made it should be about the (conditioned) interactive possibilities of works in comparison with other accessibility and interactivity strategies.

The aim of Simon Lamunière, curator of the Internet Art section, was to display the artworks for their content instead of technical aspects, structure, and context in relation to the Internet, hence the thematic division of artworks (Huffman, 1997). However, the effort proved to be unsuccessful for disregarding networked conditions and the structure of the Web (Baumgärtel, Huffman, & Jahrmann, 1997). Presenting Internet Art under these conditions can be deemed as a simple aesthetic inquiry into the practice in order to inscribe it in the structure of *documenta* as part of the institutional art system.

The local area network constrained users and their performative experience, refusing them the possibility of exploring hyperlinks — as what happened to JODI's work, which "crashed every time a user tried to interact with it" (Jones, 2017). There seemed to be a failure to understand that Internet Art works have their significance rooted in the cultural context beyond simple tangible display settings. This strategy was criticized by the community and the artists, who felt the curatorial work failed to consider that Internet Art originates from a unique environment without which it is simply out of context. It can even be maintained that the aural quality of the works, their context and history beyond the display space, was lost.

The display through a closed local network was considered a creation of "fake online experiences" (Stallabrass, 2003, p. 121). Although appropriate for providing fast and reliable access to works and not allowing visitors to navigate the Web through unrelated content, the strategy contradicted the nature of some works exploring the slowness of network connections and affected those requiring live connection to the Internet to function.

It seems unnecessary and confusing to gather Internet Art works under the same space with no other justification other than their common use of the Internet, especially since the practice was still very loosely defined, even amongst its practitioners (Huffman, 1997). As this categorization was solely based on the works' use of technology, it may even be

considered a glorification of technological developments as well as an outworn division between art genres.

The choice of presenting computers in an exhibition is ultimately dependent on the specific artworks. According to the *Online Resource Guide for Exhibiting, Collecting & Preserving Media Art* by the Electronic Arts Intermix, besides the artist's intent, other parameters such as "physical space, dimensions, light levels, degree of interaction, and budget" should be considered (Electronic Arts Intermix, 2006). In the case of works relying on interactivity, it becomes necessary to determine within the artist's rationale what is the interaction level of the artwork and what devices are needed for interaction purposes (gaming devices, mouse, keyboard, touch screen monitor, etc.).

Computers in an exhibition may seem accessory since they are mostly a viewing support. This has been considered barbaric for failing to translate a work between two languages (Quaranta, 2013). Although it may be argued that a computer is the natural space of Internet Art works, setting it up in an exhibition equates to a simulation of an authentic space for the experience of Internet Art since it is meant for private usage (Baumgärtel, Christ, & Dressler, 2008). If the purpose of exhibitions includes reconstructing original contexts for authentic experiences of art, most curatorial efforts can be considered rather decontextualizing. According to Benjamin's theorization of translational work, exhibiting an artwork means giving it a form in a context other than its original while trying to minimize the impact of this translation on its meaning. To counter that tangible exhibitions of Internet Art may never attain full authenticity as they will always be translations, they "have to be understood not only as platforms for artifacts but as discourses and contexts that reach far beyond the four walls of gallery or museum" (Baumgärtel, Christ, & Dressler, 2008, p. 241) and point to that site of authenticity, i.e. the Internet. Christiane Paul considers this to be a legitimate strategy only if there is no equivalent in the target translation language to convey the work's original message or "inherent 'netness'" (Paul, 2008, p. 57).

Curators may also refuse to display Internet Art in computers due to accessibility problems. Visitors may not be acquainted with digital technology and new media, which is crucial for interaction and actualizations. In addition, a computer usually does not allow its usage by more than one visitor at a time. There are also practical and technical challenges as hardware gets stolen and damaged, systems crash, and computers may be used to navigate irrelevant content on the Web. As "faceless beige boxes", computers are still perceived by curators and visitors as an "aesthetic insult" (Baumgärtel, Christ, & Dressler, 2008, p. 239). Curators also ponder whether to expose or render the computer invisible (through embedding them on walls or plinths), while on the one hand they are out of context in the public domain and on the other hand they may be necessary when the materiality of hardware is referred by works (Paul, 2007). These curatorial settings require constant maintenance and great resources to acquire or rent technological equipment, which most traditional spaces do not own or cannot host due to the lack of technical conditions (Paul, 2007). Moreover, experience conditions through computers also need to be addressed: while in open spaces one recipient engages with the artwork others can observe their interaction; whereas experience in private spaces (stations) resembles private usage of computers at home or at the office. Sound lock and light lock also require some consideration as lighting can affect viewing conditions on screens and sound may affect the experience of other artworks.

Despite the failure, *documenta X* was innovative in highlighting the ongoing crisis of the concept of objecthood in which the art system is rooted. The inclusion of Internet Art was a statement about artists seeking expression beyond the traditional, three-dimensional, and auratic art form, thus challenging traditional display strategies and spaces and commodification of art. The imperatives of the institutional system were ultimately observed on the removal of the website from public access and its commercialization as a CD-ROM.

The issue of how to present Internet Art outlived the tenth edition of *documenta*. Above all, it became obvious that Internet Art is dependent of context beyond a simple computer

display and deals not only with data traffic on the network, but also with the conditions of how it is apprehended by those who access it.

net.ephemera

net.ephemera, curated by Mark Tribe in 2002 at the Moving Image Gallery in New York, probed the display of Internet Art works in tangible space through a documentation strategy. The conceptual ground of the exhibition resides in the acknowledgement of the difficulty of displaying Internet Art in gallery-like spaces while this art is primarily intended to be experienced in online conditions through personal computers in intimate and solitary interaction without requiring institutional mediation (Ptak, 2010). What *net.ephemera* proposed was thus, an inquiry into how this genre can be displayed in a gallery if such spatial recontextualization entails a rethinking about the visitor's experience and significance of the works.

Twenty-five New York-based Internet artists were asked by the curator to produce tangible ephemera related to their Internet Art practice – notes, receipts, diagrams, drawings, and other tangible artifacts – no larger than the conventional A4 sheet dimensions (210 x 297 millimeters) (Ptak, 2010).

The ephemera were displayed horizontally in the gallery in alphabetical order by the last name of its creator. Each ephemeron was displayed inside archival plastic sleeves at the same height. Information sheets and catalogs were available in the gallery. The curator's installation instructions also conceded the option of setting up a computer with Internet connection so that visitors could access the exhibition website.

The website[15] was of great simplicity in portfolio style, informing about the aim of the curatorial work and displaying through an interactive Flash feature the works of the twenty-five participating artists. By selecting the name of an artist, one could read their

[15] https://web.archive.org/web/20131018075759/http:/kebabaquarium.com/net.ephemera%20web/

biography and statement and access images and descriptions of both ephemera and artworks they refer to. Contact e-mails of the artists and links to their online works were also included.

Figure 11: *net.ephemera* exhibition website, 2002. Captured from https://web.archive.org/web/20131018075759/http:/kebabaquarium.com/net.ephemera%20web/

What is unprecedent in *net.ephemera* is the attempt to address the standpoint of the artist's intent during production of Internet Art works, which is essentially a measure of preservation practices. While referring to the Internet Art works, the ephemera document their conception and production, thus acquiring value for grounding the works and informing about the artist's mental processes. *WonderWalker*[16] (2000) by Marek Walczak and Martin Wattenberg is a website on which users are allowed to share and organize collections of their favorite Web content producing a collaborative map. The work's

[16] http://wonderwalker.walkerart.org/

ephemera displayed on the exhibition are two screenshots of ideas for the visual interface of this map while it was still in conceptual stage.

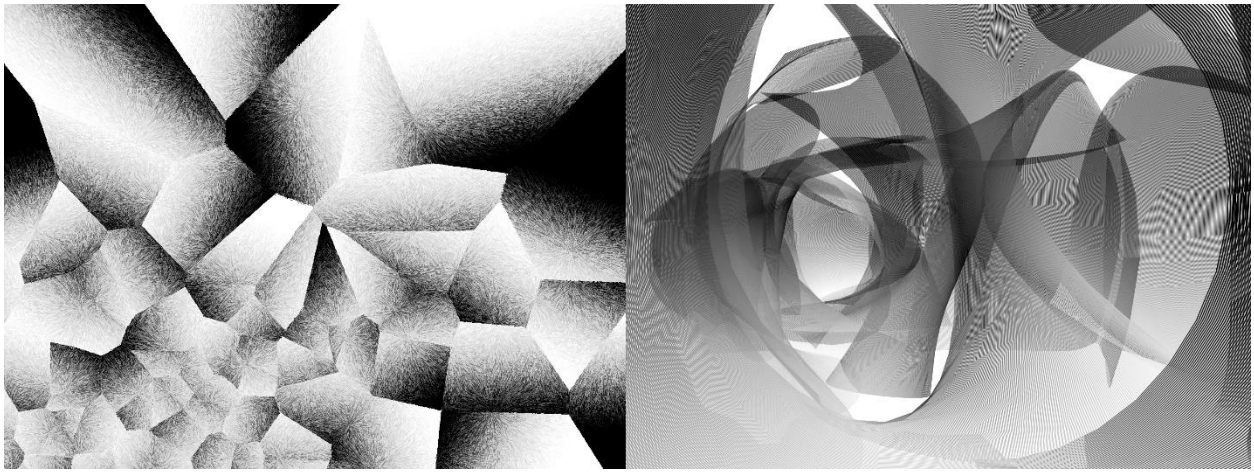

Figure 12: Marek Walczak And Martin Wattenberg, ephemera of *WonderWalker*, 2000. Courtesy of Mark Tribe.

Besides documents, ephemera can be assessed as derivative works in that they are lasting products or iterations that conceptually recall the underlying basis if the original Internet Art works, thus acquiring financial and collectible value (Lichty, 2008). While it may be seen as a subordination to the art market since it is based on tangible and easily commodifiable formats, it is ultimately a strategy through which ephemeral artworks can essentially obtain value in the institutional processes of circulation and museification. The exhibition can also be seen as a critique to the institutional art system based on the object value of art. By displaying ephemera, the Internet Art works are overshadowed by the tangible traces of this practice. The ephemera are legitimized by acquiring the status of art object and the auratic quality described by Walter Benjamin. In Mark Tribe's words, "[Internet Art] will probably be productised much in the way that conceptual art, earthworks and performance art have been - which is through the ephemera" (Tribe, 2001).

The strategy, while addressing the issue of displaying Internet Art outside the computer, takes into consideration the conservation and archival problems of this practice. As

opposed to strategies employed by former exhibitions involving art supposed to be experienced on the Internet, such as *documenta X* or the *Whitney Biennial* of 2000 – in which works were displayed in computer stations and projected on walls without considering the artist's intent for the experience of their works –, *net.ephemera* took on the strategy of inviting artists to produce tangible works referring to their Internet Art production. The effort, thus, bypasses problems hinged to how best display online works by other means than simply bringing them into the gallery in their original form. This curatorial mode also resembles a laboratory for aiming to turn visible part of the creative process of the works and give insight about the meaning of the work and the artists' mental processes.

The exhibition tried to advance a way of making such an 'immaterial' (digital) practice commercially viable so as to enter the market and the institutional system based on the materiality of ephemera and the maintenance of Benjamin's aura. In this aspect, it resonates with how Conceptual Art and Performance were commodified through ephemera.

net.ephemera also poses the question of what actions may be put into practice so that in the future access to preserved artworks as well as ephemera related to their production is guaranteed. It acknowledges the need to strive for the development of strategies for artists to preserve their ephemera and integrate them into the scope of materials of potential value for institutions.

This documentation strategy — as gathering and organizing information from artworks — resonates with practices of art preservation and consists in displaying works of Internet Art through documents with referential value of conceptual and production processes and various variants of a work. The meaning of documents derives from context as they inform about the artwork's content and conditions. Considering curatorial work through Walter Benjamin's account of translational work, this could be deemed a weak translation and a supplement of the original since it may decontextualize the work from its origins and

provide little more than evidence of the work's existence in fragmented vestiges, especially if it captures only the final state of a work and fails to document its entire evolution. Both curators and conservators consider the approach a mere change of form that cannot replace the original (Dekker, Enabling the Future, or How to Survive FOREVER, 2016), however, it is not unusual for documentation to become a substitute of artworks that are ephemeral or contain elements in way of becoming obsolete. Not unlike Performance Art, which depends on documentation to obtain status in the cultural domain and maintain the value of authenticity, documents of Internet Art can ultimately gain aesthetic value and be considered part of the work or even works of art in their own right (Dekker, 2016).

Documentation may also reveal hidden dimensions of an artwork, add new layers of ideas into its concept, and enlighten about the structure, behavior, and experience of works. Since it involves collecting and organizing information about an artwork, it has the potential of the virtualization process described by Lévy, which is to open an entity to its problematic basis in order to accommodate a critical assessment. Capturing the processual part of an artwork leads to opportunities for evaluation and reflection on variants and different stages of the creative and actualization processes .

The exhibition is assessed as a means to ethically recognize the dignity of ephemera documentation as the first step toward its preservation. Ephemera are in general valuable sources for research into the art network and its agents – artists, museums, dealers, collectors, etc. They reflect and document their period (e.g. typography, language, design) while informing on artistic views. If there is a failure to recognize its importance, its data will have a short lifecycle for its potential value should prompt preservation in ways that are accessible, comprehensible, and safe in order for it to be retrieved in the future. Illustrative of the value ephemera have as source material is their featuring in exhibitions in their own right (as opposed to their relegation as side notes) and the current interest reflected by the art market on them (Koot & Koppenol, 2016). Due to the essential and unique information ephemera main contain, it becomes crucial for both researchers

and public to have access to them, thus it is an important task to ensure the visibility and availability of this material for institutions managing collections.

Electronic Superhighway

Electronic Superhighway, curated by Omar Kholeif and Emily Butler at the Museum of Art, Architecture and Technology in Lisbon, surveyed the historical relationship between the worlds of artistic practice and technology through artworks spanning from 1966 to 2016 of over 70 artists. The key question posed in the introductory wall text was: how is the Internet changing art?

At the start of the exhibition a wall text informed that some artworks displayed were interactive and open to engagement by visitors. These were specifically identified throughout the exhibition so that visitors would not touch other works or cross safety areas around them.

Because of its broad historical scope, the works from the curated selection which this research is concerned with span from earlier Internet Art of the 1990s to Post-Internet art. The section containing most Internet Art works was separated from the main gallery on another floor level and may be assessed as a white cube for its clean and decontextualized space. Artworks on this gallery were selected in collaboration with Rhizome from the ArtBase online open archive. Most works were displayed on separate wall-mounted desks with computer monitors including keyboards and mice when required for interaction purposes.

Although most of the works' display strategies were not uncommon, some stand out. Jan Robert Leegte's *Scrollbar Composition* (2000)[17], a webpage with various HTML/CSS boxes and scrollbars in constant movement, was presented in three adjacent computer screens, each showing a different variant of the webpage according to the browser used. Ann Hirsch's *Twelve* (2013) was displayed as a web app on an iPad mounted on a desk station

[17] http://www.scrollbarcomposition.com/

of its own. Its display may be regarded as an installation for simulating the desk environment of a teenage girl's bedroom. The objects are contextual to the work's content — a simulated online chat room. Visitors would sit on the chair and interact with the work by scrolling through the touch screen device showing the history of the chat conversation. Martine Neddam's *Mouchette.org* (1996) was displayed on a computer station allowing interaction between its website and visitors through a keyboard and mouse. Next to the computer was an LCD screen with video and audio documentation of the work. Besides these alternative strategies, Taryn Simon's *Image Atlas* (2012)[18] was projected on a wall inside the darkened space of a black box adjacent to the white cube. The work is a website indexing the first image results for searches according to country. The black box space contained a plinth with a keyboard and mouse. Visitors would make their own searches through 57 countries and sort the results by country in alphabetical or GDP order. Several people could fit into the black box and observe each other's engagement with the work.

Other works were displayed alongside non-Internet Art works on the main gallery space. Evan Roth's *Internet Cache Self Portrait: November 24, 2015* (2015) is positioned within the Post-Internet Art practice and was produced from a collection of images retrieved from the Internet using an image packer algorithm. The variant displayed was a wall-mounted vinyl print containing these images. Young-Hae Chang Heavy Industries' *Samsung (Tango Version)* (2009), a Flash movie consisting of text and a tango soundtrack, was displayed on an LCD screen.

[18] http://www.imageatlas.org/

Figure 13: Jan Robert Leegte, *Scrollbar Composition*, 2000

Figure 14: Ann Hirsch, *Twelve*, 2013

Figure 15: Martine Neddam, *Mouchette.org*, 1996

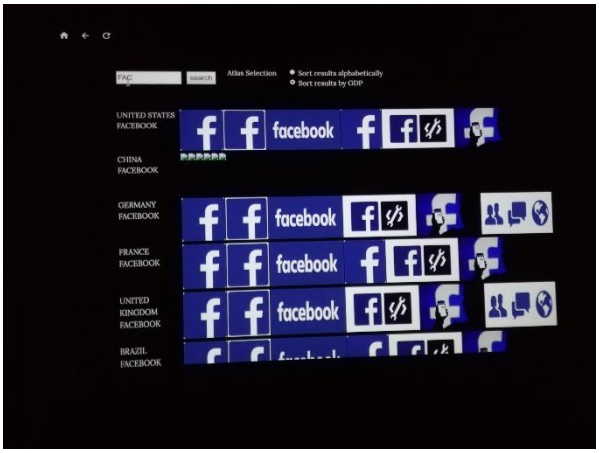

Figure 16: Taryn Simon, *Image Atlas*, 2012

The curatorial strategies of this exhibition include the display of Internet Art through computer stations, LCD screens, projection, and installation.

The computer station strategy resembles *documenta X*'s Internet Art section, however, it was only possible for one visitor to interact with a work at a time, whereas *documenta* provided stations with two terminals for accessing each work. This may have proved problematic in crowded moments, although visitors could still observe each other's engagement with works.

LCD screens presented interactive Internet Art works without allowing interaction from visitors, which resulted in their playback and appearance as framed paintings or video works meant to be contemplated from a distance. Although the strategy suffices to demonstrate the behavior of the works, it does not allow experience in dealing with the material of the artworks, its structure, content, and context. Interaction provides opportunity for a different kind of understanding that does not occur in simple contemplation. JODI's *GeoGoo*, for instance, appeared to be a video capture of a broken webpage misbehaving when, in fact, it was designed to deny conventional ways of user experience on the Web. While in some artworks the artists may maintain control over interaction possibilities and their results, in this case it was the curatorial work setting boundaries within which visitors experienced the works. Although it is common for interactive artworks to be stabilized and lose their interactive nature in the context of archiving or documentation, it is not in the case of exhibitions. This may be problematic when only a fragmented variant of the work is displayed, while its expanded communication possibilities, potential of completion, and creation of meaning are conditioned. Moreover, it reinforces the idea that artworks lose their contextualization when entering the museum, thus aestheticizing them and diminishing their relationship with Web culture and experience conditions online. Displaying works such as JODI's *GeoGoo* and Heath Bunting's *readme* as autonomous pieces in LCD screens resonates with a documentation strategy for display purposes, in which the behavior of works and the recipients' experience while engaging with it are documented to some extent.

It is important to analyze the cases in which the display strategy was not simply presenting the works in computer monitors or screens. The variability principle of the new media object pointed out by Manovich implies that Internet Art works may be translated for specific display settings into variants of various formats and installed according to different parameters of dimensions and technical requirements. This versioning calls forth the curatorial mode of the "exhibition as a software program or data flow" in which each node of trajectory the content of the artwork is modified and adapted to the setting of display

in an "ever-changing data flow […] to produce different outcomes, depending on the audiences and the organizers" (Cook, 2008, pp. 33-35). The curatorial presentation of *Twelve* and *Image Atlas* can be read through Walter Benjamin's essay on translational work — a translation does not merely carry a message; it mutates the translated object's value while mutually exclusive differences between languages or instantiations coexist. These works, originally accessible on the Internet, were adapted to the display settings of an installation and black box projection. While their format of experience changed, interactivity and the conceptual ground of the works were maintained. *Image Atlas* gained a larger scale, which potentiates the simultaneous experience of multiple visitors. *Twelve* acquired a tridimensional form through the addition of contextualizing elements that make references the content of a simulated teenage girl's conversation on an AOL chatroom called Twelve.

These strategies have an important say in the preservation of Internet Art works in that they reflect an understanding that materiality may not be an artwork's most valuable trait, thus allowing it to be versioned and still be experienced in authentic ways if intrinsic qualities of the aesthetic experience are guaranteed in agreement with the principle of variability of new media and translational work.

4. CONCLUSION

Analyzing Internet Art through major new media theories was helpful in understating its structure and behaviors while analyzing conditions of the digital domain. Pierre Lévy's theorization of the virtual defines processes of actualization – i.e. the creative output from dynamic forces in order to resolve the virtual. The virtual is seen as the essential problem of an entity in its deterritorialized existence. In disengaging from tangible space and chronological time, the virtual has full creative potential. His concept of actualization supports an understanding that any experience represents a movement form virtual to actual in multiplying the opportunity for meaning production, which also brings forth issues related to authorship as the recipient of the experience and their interpretation and interaction are acknowledged as crucial for the actualization process. Lévy's account of closed and networked virtual worlds is informative on the relationship between online and offline domains as they are interrelated and built upon each other.

Lev Manovich analyzes new media through several principles. His account is valuable for considering technology in art as a medium (with objects reflecting the affordances and structure of the medium) and as a production tool. Numerical representation stands for the manipulation of objects that rely on algorithm and can be asserted to the whole of digital art practices. Modularity signifies that the new media object's modular composition through an assemblage of heterogenous smaller elements is determined by numerical representation. Automation suggests that operations of accessing, manipulating, and creating new media objects can be sustained by automatic processes, in turn based on numerical representation and modularity. Variability refers to the potential of new media objects to mutate into different variants or versions. Lastly, transcoding asserts that new media objects are translatable between formats that are mutually influenced, not unlike Lévy's virtual worlds, and between structures of apprehension and organization that are sensuous and machine-readable.

Interactivity is to Lévy an actualization in which the medium allows for personalization and appropriation in the communication processes between two or more entities. This allows for new solutions to the virtual to be unveiled through creative potential. It is also in interactivity that the aesthetic experience is to be found for it emerges every time a recipient prompts an actualization process.

The concern with interactivity is this dissertation relates to the processes of perception and exchange brought forth by Internet Art. Manovich contends that what is usually acknowledged as interactivity is a myth and performance is mostly limited by externalized mental functions and preset possibilities as a reflection of society's need for standardization. In this way, imagination and subjectivity are numbed and objectified. Closed and open interactivity are modes by which the recipient is allowed to establish a relationship with new media. Open interactivity stands for a real time and responsive interaction without preset constraints, whereas closed interactivity is simple scripted navigation through canonical ways of performance.

Processes of perception are also advanced by visualization systems. Interfaces are tools mediating data between formats and structures of apprehension and cultural and technical domains. Each visualization system provides fixed forms of information and unique recipient experiences according to its ideology; thus, interfaces cannot be regarded as impartial translators of information as they rather impose their own logical system on the way one retrieves and thinks about information.

The relative infancy of Internet Art is rooted in the speed of technological developments resulting in a poor understanding of its creation and actualization processes, structure, and preservation approaches. Due to the intrinsic qualities of Internet Art as part of the New Media Art broader landscape, it is asserted that preservation of these works requires a conceptual change in preservation approaches in relation to tradition. Uniqueness and physical integrity constitute problems when dealing with art using technology, thus preservation will need to come to terms with Internet Art's mutable and processual nature.

Variability and actualization processes should be embraced and addressed by preservation theory regarding this artistic practice while materiality should not be considered its most valuable trait.

Several case studies were analyzed to survey how Internet Art has been mediated both in online and tangible domains. Issues in its accommodation by the institutional art world were traced. Audience related issues include technoelitism, in which recipients may not be familiarized with the technology Internet Art is built upon and may require assistance in doing so or reject engagement with works. Time investment in interactivity for the experience of works and canonical behavior in traditional art spaces may also be constraints. Internet Art's processual nature and technological obsolescence are also difficult to be assimilated by the institutional world. This relationship becomes even more problematic when considering the practice's external positioning to the art market and rejection of conventional strategies for storage, collection, documentation, and preservation. Tangible spaces of display of art may prove to be decontextualizing to this artistic practice for not presenting the original and contextual environment it obtains value from. Moreover, it can impact the practice negatively in that it follows an institutional framework and its formal and political aesthetic strategies. Ultimately, presenting Internet Art in traditional display spaces may prove to be a commodification of art and yielding to the art market in conformity with an assessment of the artwork through its aural quality and objecthood.

A positive outcome of presenting Internet Art in tangible settings may be the instigation of reflection upon the institutional framework for the display and distribution of art and its dependence on the original, aural, and tangible artwork whose aesthetic experience is expected to be of uniqueness. This would be more challenging to Internet Art as it would directly confront established art practices and institutional conventions. In this sense, curatorial work finds purpose in the conjunction of different disciplines. Keeping Internet Art in its original environment contributes to its marginalization and maintains hierarchical taxonomies between art practices. Transferring Internet Art from digital to tangible format

gives substantiation to the practice, for physical stability may overcome reproduction and preservation issues. However, this versioning may ultimately be considered a commodification.

äda'web stands for an innovative model of Internet Art production and mediation initiative as it was founded in a time with no previous models of similar ventures and when the Web was still in its infancy and not yet wholly captured by commercial interests. The initiative was predicated by the mediation of Internet Art by means external to the institutional art world through the Web as a neutral public space set apart from constraints and imperatives of the art system and market. Its foundry lab-like model, based on collaborative experimentation and knowledge exchange between participants, gains relevance in dissolving technoelitism and glorification of technology on its own. One can assert that the curatorial figure of äda'web represents a departure from that of the selector or commissioner of content, being rather much closer to that of a collaborator of the guest artists and technical work team in the development of works. The online mediation interface of äda'web is opposed to Manovich's myth of interactivity (navigation) by allowing the recipients' engagement through unexpected ways. The Internet Art projects were also mediated according to the same logic of valuing the contextual input of visitors as part of the works' actualization processes. Issues regarding obsolescence of technology and digitized information are also brought up by äda'web. While its loss of funding points to a failure of the institutional art world to recognize the value of artistic experimental work involving the Web, it also anticipated the failure in maintaining its contents and context as many of its hyperlinks are now broken and lead to empty or nonexistent domains. The case of äda'web demonstrates that the Web's conditions are mutable, thus endangering its components and cultural contexts.

Rhizome's ArtBase curated archive examines the implications of digital-born artworks and their usage of emerging technologies while fostering critical dialogue, mediation, and preservation. Besides providing public access to them in accurate archival digital formats, longevity is attained by backups and descriptive records of the artworks' context, content,

and technology. There is also consideration for the artist's opinion regarding appropriate preservation strategies for their works. A main effort of the ArtBase is the maintenance of the artworks' original contexts through new paradigms of preservation and mediation employed to provide long-term accessibility and accurate technological conditions and experiences. The archive can be assessed as a research, educational, and learning tool due to its valuable mediation efforts and rich context for audiences to gain knowledge about the art Rhizome devotes itself to. Audience engagement is also valued as members of Rhizome may curate their own virtual exhibitions. The ArtBase fails, however, in the preservation of tangible objects and ephemera relating to the creative and production processes of artworks, which may be potentially problematic as they will be considered valuable in the future, particularly when considering survival prospects of digital objects in comparison to tangible objects.

Documenta X presented Internet Art in 1997 with an aim to challenge the elite definitions and boundaries between art practices. The effort was heavily criticized for its separate office-like space where computers used to display the works were disconnected from the Internet, constraining visitor engagement and work behaviors while disregarding the networked conditions and structure of the Web. It can thus be assessed as a simple aesthetic inquiry into Internet Art for failing to recognize that the works obtain their significance from a unique cultural environment without which they are decontextualized. Separation from the other venues of the event and categorically gathering Internet Art works under the same space based on the use of technology ultimately reflects Internet Art's marginal status while also being an outmoded division between genres and an unnecessary glorification of the innovative effort of documenta regarding the promotion of technology usage in art production. The website of documenta X also proved controversial. As a platform for showcasing Internet Art, it extended the tangible event to a global audience through interactivity and decentralized access. However, its removal from the online public space after the duration the event and its copy into CD-ROM format made commercially available is an undeniable sign of institutional control over an art practice by assigning it economic value, while also failing to safeguard its evidence online.

Despite all the failure and criticism, documenta X highlighted the crisis of objecthood in the art system by promoting artists and artistic practices that challenge traditional strategies of production and mediation and the commodification of art.

net.ephemera departed from the acknowledgement of the difficulties related to displaying Internet Art in tangible space given that it requires a recontextualization and rethinking about the experience and significance of works. The strategy followed was unprecedent in addressing the standpoint of the artist's intent and production processes of Internet Art works. Not unlike Rhizome's ArtBase, *net.ephemera* focused on documentation as a preservation and mediation strategy of Internet Art. Their analysis contends that documentation is as important as conventional material preservation and technical maintenance, for ephemera reflect and document their period while informing on artistic views. The ephemera relating to Internet Art works may also be assessed as derivative works in that they are products or iterations that acquire collectible, aesthetic, and market values.

Electronic Superhighway inquired into how the Internet affects art production and included a broad range of works of Internet Art from the 1990s to current Post-Internet Art. The curatorial work is based on display strategies involving computer stations – akin to documenta X –, LCD screens, projection, and installation. Computer stations were successful in allowing interactivity with the artworks, despite the accessibility issues they present. LCD screens proved problematic in stabilizing some works originally produced to actualize through interactive engagement, thus resulting in a poor and fragmented translation for conditioning the creation of meaning and full completion. Variability as an inherent quality of Internet Art was in other cases successfully evident in versioning works into formats that are adequate to tangible display settings, including installation and projection. These are ultimately assessed as reflecting an understanding that the materiality of an artwork is not its most important feature for successful translations between formats also attain authenticity in the way they are experienced.

5. REFERENCES

Albuquerque, I. (2013). *A Internet com Meio de de Criação Artística: Internet Art.* Aveiro: Universidade de Aveiro.

Archey, K., & Peckham, R. (Eds.). (2014). *Art Post-Internet: Information / Data.* Beijing: Ullens Center for Contemporary Art.

Atkins, R. (1998, September). *What is äda'web?* Retrieved May 29, 2018, from Walker Art Center: https://web.archive.org/web/20130716202319/http://www.walkerart.org:80/gallery9/dasc/adaweb/atkins.html

Baumgärtel, T. (1997, November 4). *Interview with Alexei Shulgin*. Retrieved December 6, 2017, from Nettime: http://www.nettime.org/Lists-Archives/nettime-l-9711/msg00005.html

Baumgärtel, T. (1997, October 6). *Interview with Jodi*. Retrieved June 9, 2018, from Telepolis: https://www.heise.de/tp/features/Interview-with-Jodi-3446080.html

Baumgärtel, T. (2001). Net Art: On the History of Artistic Work with Telecommunications Media. In P. Weibel, & P. Druckrey (Eds.), *net_condition: art and global media* (pp. 152-161). Cambridge MA: The MIT Press.

Baumgärtel, T. (2001). *net.art 2.0: Neue Materialen zur Netzkunst / New Materials towards Net Art.* Nuremberg: Verlag für Moderne Kunst Nürnberg.

Baumgärtel, T., Christ, H., & Dressler, I. (2008). games: Computerspiele von KünstlerInnen (games: Computer games by artists). In C. Paul (Ed.), *New Media in the White Cube and Beyond: Curatorial Modes for Digital Art* (C. Paul, Trans., pp. 233-250). Berkeley: University of California Press.

Baumgärtel, T., Huffman, K. R., & Jahrmann, M. (1997, June 27). *The Opening of Documenta X, A First Flash Report*. Retrieved May 13, 2018, from Telepolis: https://www.heise.de/tp/features/The-Opening-of-Documenta-X-A-First-Flash-Report-3442107.html

Benjamin, W. (1996). The Task of the Translator. In W. Benjamin, M. Bullock, & M. Jennings (Eds.), *Selected Writings: Volume 1, 1913-1926* (pp. 253-263). Cambrige, London: The Belknap Peress of Harvard University Press.

Benjamin, W. (2002). The Work of Art in the Age of Its Technological Reproducibility: Second Version. In H. Eiland, & M. W. Jennings (Eds.), *Walter Benjamin: Selected Writings, Volume 3, 1935-1938* (Vol. 3, pp. 101-133). Cambridge (MA), London: The Belknap Press of Harvard University Press.

Berry, J. (2001). *The Thematics of Site-specific Art in the Net.* Manchester: University of Manchester.

Besser, H. (2001, February). *Logevity of Electronic Art*. Retrieved May 26, 2018, from UCLA School of Education & Information Studies: http://besser.tsoa.nyu.edu/howard/Papers/elect-art-longevity.html

Campanelli, V. (2010). *Web Aesthetics: How Digital Media Affect Culture and Society.* Rotterdam: NAi Publishers.

Colson, R. (2007). *The Fundamentals of Digital Art.* Lausanne: AVA.

Cook, S. (2008). Immateriality and Its Discontents: An Overview of Main Models and Issues for Curating New Media. In C. Paul (Ed.), *New Media in the White Cube and Beyond: Curatorial Models for Digital Art* (pp. 26-49). Berkeley: University of California Press.

Corcoran, H. (2013). Foreword. In J. McNeil (Ed.), *Best of Rhizome 2012* (p. 1). Bescia: Link Editions.

Corcoran, H., & Graham, B. (2016). Self-Collection, Sel-Exhibition? Rhizome and the New Museum. In B. Graham (Ed.), *New Collecting: Exhibiting and Audiences After New Media Art* (pp. 97-110). New York: Routledge.

Cornell, L., & Halter, E. (2015). Hard Reboot: An Introduction to Mass Effect. In L. Cornell, & E. Halter (Eds.), *Mass Effect: Art and the Internet in the Twenty-First Century* (pp. xv-xxxiv). Cambridge, Massachusetts: The MIT Press.

Cramer, F. (2002, March 22). *Concepts, Notations, Software, Art*. Retrieved December 12, 2017, from Netzliteratur: https://www.netzliteratur.net/cramer/concepts_notations_software_art.html

Cramer, F. (2003). *Ten Thesis about Software Art.* Retrieved December 9, 2017, from Pleintekst: http://cramer.pleintekst.nl/all/10_thesen_zur_softwarekunst/10_theses_about_software_art.pdf

Cramer, F., & Gabriel, U. (2001, August 15). *Software Art*. Retrieved December 12, 2017, from Netzliteratur: https://www.netzliteratur.net/cramer/software_art_-_transmediale.html

Daniels, D., & Reisinger, G. (2009). *Net pioneers 1.0: Contextualizing Early Net-based Art.* Berlin: Sternberg Press.

David, K. (1997). Introduction / Vorwort. In K. David, & P. Sztulman (Eds.), *documenta X: Short Guide / Kurzführer* (pp. 6-13). Ostfildern-Ruit: Hatje Cantz.

Davis, D. (1995). The Work of Art in the Age of Digital Reproduction (An Evolving Thesis: 1991-1995). *Leonardo, 28*(5), 381-386.

Dekker, A. (2016). Enabling the Future, or How to Survive FOREVER. In C. Paul (Ed.), *A Companion to Digital Art* (pp. 553-574). Sussex: Wiley-Blackwell.

Dekker, A. (2018). *Collecting and Conserving Net Art: Moving Beyond Conventional Methods.* New York: Routledge.

Demers, M. (2012). Color Field Paintings (Browser). In X. Burrough, *Net Works: Case Studies in Web Art and Design* (pp. 7-15). New York, London: Routledge.

Depocas, A., Ippolito, J., & Jones, C. (Eds.). (2003). *Permanence Through Change: The Variable Media Approach.* New York, Montreal: Guggenheim Museum Publications, The Daniel Langlois Foundation for Art, Science, and Technology.

Dewdney, A., & Ride, P. (2006). *The New Media Handbook.* (J. Curran, Ed.) Oxon, New York: Routledge.

Diamond, S. (2008). Participaion, Flow, and the Redistribution of Authorship: The Challenge of Collaborative Exchange and new Media Curatorial Practice. In C. Paul (Ed.), *New Media in the White Cube and Beyond: Curatorial Models for Digital Art* (pp. 135-162). Berkeley: University of California Press.

Dietz, S. (2008). Curating Net Art: a field guide. In C. Paul (Ed.), *New Media in the White Cube and Beyond: Curatorial Models for Digital Art* (pp. 76-84). Berkeley: University of California Press.

Dreher, T. (2015, September). *History of Computer Art*. Retrieved January 17, 2018, from IASLonline: http://iasl.uni-muenchen.de/links/GCA-VI.3e.html

Droitcour, B. (2014). The Perils of Post-Internet Art. *Art in America, 102*(10), 110-119.

Electronic Arts Intermix. (2006). *EAI Online Resource Guide for Exhibiting, Collecting & Preserving Media Art*. Retrieved February 23, 2018, from Electronic Arts Intermix: http://www.eai.org/resourceguide/

Erőss, N. (2013). *Curatorial Dictionary*. Retrieved February 6, 2018, from tranzit.hu: http://tranzit.org/curatorialdictionary/index.php/dictionary/participation/

Fino-Radin, B. (2011). *Digital Preservation Practices and the Rhizome ArtBase.* Retrieved May 25, 2018, from Rhizome: http://media.rhizome.org/artbase/documents/Digital-Preservation-Practices-and-the-Rhizome-ArtBase.pdf

Fino-Radin, B. (2011). *Digital Preservation Practices and the Rhizome ArtBase.* Retrieved May 25, 2018, from Rhizome: http://media.rhizome.org/artbase/documents/Digital-Preservation-Practices-and-the-Rhizome-ArtBase.pdf

Fino-Radin, B. (2016). The Nuts and Bolts of Handling Digital Art. In C. Paul (Ed.), *A Companion to Digital Art* (pp. 516-536). Sussex: Wiley-Blackwell.

Galloway, A., & Tribe, M. (2001). Rhizome. In H. Leopoldseder, & C. Schöpf (Eds.), *Cyberarts, International Compendium Prix Ars Electronica* (pp. 68-69). Vienna, New York: Springer Press.

Greene, R. (2004). *Internet Art.* New York: Thames & Hudson.

Hochrieser, S., Kargl, M., & Thalmair, F. (2009). Trans.form.work: Net art in the real space. In J. M. Prada (Ed.), *3rd Inclusiva-Net Meeting: net.art (segunda época)* (pp. 47-61). Madrid: Medialab Prado.

Huffman, K. R. (1997, August 1). *The WebSite of documenta x*. Retrieved January 25, 2018 from Telepolis: https://www.heise.de/tp/features/The-WebSite-of-documenta-x-3442115.html

Huhtamo, E. (1995). *Ten Myths of the Internet.* Retrieved January 10, 2018, from Thomas Ciufo: http://www.ciufo.org/classes/csc106_sp08/readings/interaction.pdf

Huhtamo, E. (2012). Sete equívocos sobre a arte interativa [Seven Ways of Misunderstanding Interactive Art]. In R. Barreto, & P. Perissinotto, *FILE SP 2012: Electronic Language International Festival* (pp. 8-15). São Paulo: FILE.

Ippolito, J. (2002). Ten Myths of Internet Art. *Leonardo, 35*(5), 485-498.

JODI. (1997, July 9). *debate: dx webprojects*. Retrieved March 28, 2018, from documenta 12: https://web.archive.org/web/20061010125131/http:/www.documenta12.de/archiv/dx/lists/debate/0010.html

Jones, C. (2017, March 2). *The Copy and the Paste*. Retrieved January 31, 2018 from Rhizome: http://rhizome.org/editorial/2017/mar/02/the-copy-and-the-paste/

Jones, C. (2017, March 2). *The Copy and the Paste: documenta X's 1997 net art exhibition and Vuk Ćosić's 'Documenta Done'*. Retrieved April 11, 2018 from Rhizome: http://rhizome.org/editorial/2017/mar/02/the-copy-and-the-paste/

Koot, R., & Koppenol, K. (2016). From Marginal to Mainstream: Art Ephemera as Research Material at the RKD. *Art Documentation: Journal of the Art Libraries Society of North America, 35*(1), 43-56. Retrieved June 1, 2018, from http://rkddb.rkd.nl/rkddb/digital_book/201602855.pdf

Kwastek, K. (2013). *Aesthetics of Interaction in Digital Art.* Cambridge, London: The MIT Press.

Lévy, P. (1997). *Welcome to Virtuality.* Retrieved January 12, 2018, from Ars Electronica: http://90.146.8.18/en/archiv_files/19951/E1995_091.pdf

Lévy, P. (1998). *Becoming Virtual.* New York: Plenum Press.

Lévy, P. (2001). *Cyberculture.* Minneapolis: University of Minnesota Press.

Lichty, P. (2008). Reconfiguring Curation: Noninstitutional New Media Curating and the Politics of Cultural Production. In C. Paul (Ed.), *New Media in the White Cube and Beyond: Curatorial Modes for Digital Art* (pp. 163-187). Berkeley: University of California Press.

Lovejoy, M., Paul, C., & Vesna, V. (2011). *Context Providers: Conditions of Meaning in Media Arts.* Bristol: Intellect.

Manovich, L. (2001). *The Language of New Media.* Cambridge, London: The MIT Press.

McHugh, G. (2011). *Post Internet: Notes on the Internet and Art.* Brescia: Link Editions.

Olson, M. (2011). Postinternet: Art After the Internet. *Foam Magazine*(29), 59-63. Retrieved March 20, 2018, from Marisa Olson: https://shop.foam.org/en/foam-magazine-foam-magazine-29-whats-next.html

Paul, C. (2007). The Myth of Immateriality: Presenting and Preserving New Media. In O. Grau (Ed.), *Media Art Histories* (pp. 251-274). Cambridge (Massachusetts): The MIT Press.

Paul, C. (2008). Challenges for a Ubiquitous Museum: From the White Cube to the Black Box and Beyond. In C. Paul (Ed.), *New Media in the White Cube and Beyond: Curatorial Models dor Digital Art* (pp. 53-75). Berkeley: University of California Press.

Paul, C. (2008). *Digital Art.* London: Thames & Hudson.

Paul, C. (2015). *From Immateriality to Neomateriality: Art and the Conditions of Digital Materiality.* Retrieved May 31, 2018, from ISEA2015: International Symposium on Electronic Art: http://isea2015.org/proceeding/submissions/ISEA2015_submission_154.pdf

Prada, J. M. (2017). Sobre el arte post-Internet. *Aureus*(3), 45-51. Retrieved April 3, 2018, from http://www.juanmartinprada.net/imagenes/martin_prada_sobre_el_arte_postinternet.pdf

Ptak, L. (2010, September 16). *Interview with Mark Tribe, Founder, Rhizome*. Retrieved June 7, 2018, from Art Spaces Archives Project: http://www.as-ap.org/oralhistories/interviews/interview-mark-tribe-founder-rhizome

Quaranta, D. (2002, April, May). *Investigating a new realm, a new set of givens, a new landscape: interview with Benjamin Weil*. Retrieved April 10, 2018 from Noemalab: http://org.noemalab.eu/sections/specials/net_art_bioart/weil.html

Quaranta, D. (2010). *In Your Computer.* Brescia: Link Editions.

Quaranta, D. (2013). *Beyond New Media.* Brescia: Link Editions.

Quaranta, D. (2015). Situating Post Internet. Em V. Catricalà (Ed.), *Media Art: Toward a New Definition of Arts in the Age of Technology* (pp. 121-134). Pistoia: Gli Ori.

Rhizome. (1999). *About ArtBase*. Retrieved June 4, 2018, from Rhizome: http://classic.rhizome.org/artbase/about/

Rhizome. (2002, November 20). *Rhizome ArtBase Management Policy.* Retrieved June 4, 2018, from Experimental Television Center: http://www.experimentaltvcenter.org/sites/default/files/history/pdf/rhizomeartbase_2744.pdf

Shulgin, A., Bookchin, N., Blank, J., & Jeron, K. (2001, March-April). Introduction to net.art (1994-1999). In P. Weibel, & T. Druckrey (Eds.), *net_condition: art and global media* (pp. 184-187). Cambridge: The MIT Press. Retrieved from EasyLife.

Stallabrass, J. (2003). *Internet Art: The Online Clash of Culture and Commerce.* London: Tate Publishing.

Tribe, M. (2001, May 11). *CRUMB Seminars: Presentations: Mark Tribe presentation*. Retrieved June 8, 2018, from Curatorial Resource for Upstart Media Bliss: http://www.crumbweb.org/getPresentation.php?presID=36&semID=6&op=4&sublink=6&id=6&t=&vt=1&focus=transcript

Verschooren, K. (2007, February 17). *Interview with Benjamin Weil.* Retrieved May 29, 2018, from BAM Flemish Institute for Visual, Audiovisual and Media Art: https://web.archive.org/web/20160619020910/http://www.bamart.be/files/Benjamin%20Weil_interview_KarenVerschooren_2007.pdf

White, M. (2002). The Aesthetic of Failure: net art gone wrong. *Angelaki Journal of the Theoretical Humanities, 7*(1), 173-194.